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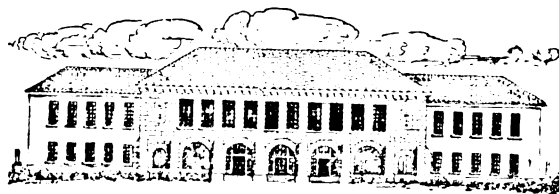
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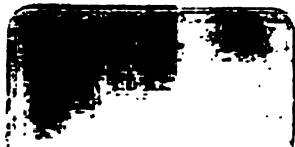
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AFTER-THE-WAR ECONOMIC FOOD PROBLEMS¹

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Those who imagined that after the war was over we should be permitted to resume the existence of five years ago precisely as we left it, to take up again the problems and the pleasures as we knew them then, have certainly by this time come to realize that all such expectations are doomed to failure. The world will not again be what it was six years ago—certainly not within our period of activity. There has been such an enormous destruction of material values and human energies throughout the world that it is not possible to hope, except in the event of the discovery of very unusual new resources, for the world to be restored in an appreciable space of time to the position occupied before the great war.

During the war it was the function of the trained women of our country to teach all women conservation, the elimination of waste and substitution. Today the world faces a deflation in prices. Deflation of prices means primarily, for the moment at least, a consumer's market. The degree to which this may extend and the results that may be expected to follow from such a condition depend largely upon the future attitude of the consuming classes themselves. It is clear, from the history of previous periods of price inflation, that the maintenance of reduced prices depends indirectly, to a large extent, upon the consuming public, since production must not be undermined.

¹ Presented at the Third Annual Meeting of the American Dietetic Association, New York, October, 1920. Published also in the *Modern Hospital*.

A year ago in this country we were all living in a fool's paradise. Everyone seemed to have an unlimited bank account. Everyone wanted everything that could possibly contribute in any way to what we defined as the attributes of well-being. We wanted the broadest and the highest standard of living, and this attitude extended through all classes. It was clear at that time that we were consuming in excess of a safe estimate of our resources, and that eventually the price for extravagance would have to be paid. The question that concerned the men who were considering the problem theoretically was upon whom the penalty would first fall and how heavy the punishment would be.

We have now come to the break. Prices are falling. They must fall. We have the psychology as well as the fact of the falling prices. The consumer today refuses to buy, not for the opposite reason of his willingness to buy a year ago—that he had money then and has no money now; that is not the primary motivation at all. A year ago the consumer believed that the trend of prices was still rising. Today the consumer believes that the trend of prices is falling and that he can accelerate that trend by refusing to buy. The consumer found to his bitterness a year ago that by his buying he hastened the trend of prices upwards, and he reasons now that in a similar way by refusing to buy he can accelerate the trend of prices downwards. And this is correct.

The only question is: To what extent is it wise to accelerate the curve of prices downwards? Now, a panic is little more than an accelerated run of price deflation. If prices are to fall, and they must fall, and then on the basis of reduced prices consumption is to be maintained, it is apparent that the refusal of the consumer to buy cannot go to the point of lowering production so profoundly that it will be later unequal to the demand. In other words, the ideal method of price deflation is that it taper off gradually. If deflation occurs precipitously, it leads to such profound disorganization of the processes of production that later when the demand comes supply cannot be maintained and prices again rise, or in any event exhibit startling instabilities.

We are gradually coming to learn that unstable prices are worse than high prices. If you were to ask a German what the trouble with the mark is, he would say that it was fluctuating. If you could fix the mark at two cents, every manufacturer in Germany—and everybody else—would be glad. When the mark was a cent and a quarter, there were large importations of cotton. The mark rose to two and three-quarter

cents, nearly three cents. This looked fine to the theorist, who says that we measure the recovery of Germany by the recovery of her currency. But when the mark rose from one and a quarter to two and a half cents, it cut the price of the sale of that cotton to the Germans, and to the outside world, in two, and every importer and manufacturer lost money. They therefore stopped importing. When the mark reached three cents, the imports and exports of Germany stopped. In these fluctuations, up and down, first the manufacturer, importer, and exporter lose, and then the banking world loses. The result is a complete disorganization of the forces of production. What is wanted in prices is a stabilized tendency, which shall enable everyone connected with production to forecast in advance the probable costs.

No man today can expect basal production to recover within a year, with the tendency to price deflation carried to such a point that some of our raw materials have already, within six months, fallen to a plane of lower than pre-war values. I have just come from Kansas where I had the privilege of speaking before the Wheat Exposition. There are men in the Middle West who farm land that is now worth between fifty to one hundred dollars an acre more than it was before the war, who are selling oats for the same price they received seven years ago. There are men in the West who are paying fifteen dollars an acre rental, and selling forty bushels of oats to the acre for forty cents a bushel; in other words, the crop is no more than paying the rental. Cotton, wool, and hides are selling below cost of production, wheat also in some sections. Now, these precipitous descents in prices, that are apparently to the interest of the consumer, are eventually, if they are carried to excess, to his detriment. For the man who wants grains next year may find that the farmer cannot plant them at that figure. No price depreciation must be so sudden and depressing that in the year to come it destroys the labor of the present year.

A true deflation is one that is continuous, equitable and sequential, and not sudden, with wide fluctuations and precipitous. Nevertheless, the consumer of foods feels the psychology of the falling prices. The consumer of foods already has the fact of the falling income. The relation between falling price and falling income constitutes for the woman in the household the problem of the next twelve months. Is the price curve to fall more rapidly than the curve of income; or is the curve of price to be a widely fluctuating one, and eventually the curve of income to fall disproportionately to the curve of price? The house-

wife is thus compelled to regard the diet from the point of view of the efficiency of the diet. The point of view of wanting the best at any price can no longer be followed in any class. The lesson of the efficiency of the diet, the control of the purchases of the American housewife and her instruction in the formulation of the family diet, from the standpoint of correct physiology and also from the standpoint of her economic situation, constitute the problems that trained women during the next year will be compelled to face concretely in their everyday work.

The standard of diet in Europe is very low—in Europe as a continent. It is higher in England than it was before the war, for the poorer class. But that is largely a question of governmental subsidy. Everywhere in Europe where the government is not paying for the food and giving it away, the standard of living is very much reduced; and in most countries even where the government is paying for the food and giving it away, the same condition exists. Europe, outside of Russia, is consuming about eighty per cent of the bread-grain she consumed before the war. She makes up for the reduction in the amount of wheat and rye consumed by milling it more highly. They do not mill grain to seventy per cent in Europe. They extract it to eighty or ninety per cent, and thus the volume of flour is little lower than it was before the war. The reduction in consumption of animal products of all sorts cannot be made up. There is an increase in vegetable food, but this is poor in calories. Therefore Europe is on a poorer diet. Europe is doing less physical work than before the war, her inhabitants have suffered reduction in bodyweight. In addition to scarcity of food supply, there is scarcity of clothing and coal. Fortunately, they have had two mild winters in Europe. The clothing they use is more thin, and the houses are not heated in Europe to anything like the pre-war temperature. This exaggerates, of course, the effect of the low calorie intake. If the present winter should be a normal winter, the usual cold winter, the present coal supply, the present clothing, and the present diet of Europe will make such a winter almost intolerable for millions of people.

Now, the Europeans, when they had to cheapen their diet, did so by making the diet more vegetarian, and this has been done to a pronounced extent in Central Europe. The Germans were not especially heavy consumers of meats; contrary to popular belief they did not consume as much meat as the British or Americans. But they were heavy consumers of fats. The Germans used to believe that sauerkraut was a cabbage dish. They have learned that sauerkraut was a fat carrier,

and without fat the national dish of the diet fails. The German diet is today very low in fat. If the total calories are reduced fifteen or twenty per cent, the proportion of the calories in the form of flour must be very much increased. This is true of all countries. In Great Britain before the war bread was about thirty-seven per cent of the total calories; it has been fifty for the last three years. In France it was over fifty; it has risen to sixty per cent. In Italy it was sixty; it has risen to seventy per cent. Today Poland and Austria have as cereal a diet as Japan had before the war. The tendency of the diet of Europe has been orientalized in the direction of a large cereal intake.

Now an abnormal and restricted diet of course works when it has to work. As a diet of compulsion it is acceptable. As a diet of choice it is impossible. The problem in this country is to guide Americans in a rational restriction of the diet, with the preservation of the attractiveness of the diet and without producing an abnormal psychology. We do not want the practice of food substitutes revived in this country in any attempt to influence the diet of the American people, because it will not work in peace times. The war diet rested upon the exalted atmosphere of patriotism. In the guidance of the American kitchen in the development of the future diet that shall be saving, we must bear in mind that this must appeal to the normal psychology, it must be regarded as a normal and correct diet. The future diet must at least be equal to the diet of, let us say, fifteen or twenty years ago, when it was much more simple than it has been during the last year.

A great deal of the possibility in diet reform depends upon our agricultural conditions. Fortunately in this direction we are aided and not opposed. We have enough wheat in this country to sustain an over-normal wheat consumption without restrictions, and still sell Europe two hundred and forty million bushels of grain. Europe will hardly be able to pay for this by any known method of finance outside of international credits. There is no purpose in saving wheat in this country, no matter how badly Europe needs food, in order to secure that wheat for Europe, because it is not a question of indispensability as it was during the war. Europe will be able to find in the world the amount of wheat she is able to pay for without any restriction of wheat consumption in North America, Australia, or the Argentine. It is not a question of substitutes. On the contrary, it is possible that the European will be in the position of doing the substitution, partly, at least, for price reasons.

The Central Europeans prefer rye if they can secure it. Rye is twenty per cent cheaper than wheat, and they will import all the rye from this country that they can secure that will meet requirements. Of course, a good deal of our rye does not meet milling requirements, because, whereas only a small proportion of wheat raised will not yield good flour, a large proportion of the rye is only adapted to animal feed or for distillation. Nevertheless Europe will first take rye. She will then purchase wheat. Europeans already have all the barley they can possibly employ as human food. They take it from their animals. If they import barley from the outside world, they will not import it for the purpose of making flour; they will import feed barley, and then from their own barley select milling barley, making that into flour because it is cheaper. Europe will not import maize from the United States. The Italian crop of maize and the crop in the Balkans is good. South Europeans will of their own accord employ maize in their diet more largely than in the past. Northern Europe could use a fifty-five per cent extracted, degerminated corn-flour, but they do not call for it; they would have the same problem of importing, and the mere fact that corn flour is somewhat cheaper does not modify the financial difficulty to a great extent. And in any event if they import maize they would not import it from here, but from the Argentine where it is cheaper.

We must therefore look forward to the situation that out of the record crop of grains in this country we shall export only wheat and rye to Europe. This makes the other grains and all the other feeds available for an extended output of animal products of all sorts. We shall mill possibly fifty million bushels of wheat this year less than we did last year. On the other hand, our extraction of flour is lower this year, so that there is in each ton of grain more mill feed. This is of very great importance, because the chief dairy sections of our country are located in close proximity to the large milling centers.

We shall have a somewhat larger crop of cotton, which means a somewhat larger crop of cotton seed. If the cotton seed is higher than nitrate from Chile and tankage from Chicago, the grower will sell it, and it will come north in the form of dairy feed; if it is cheaper, he will put it back into the soil as fertilizer. The fall in the price of cotton fiber tempts the grower to hold up the price of seed. In other words, if we have a ten or twelve per cent increase in the cotton crop, this does not mean that we shall have ten or twelve per cent more cotton seed available as feed. On the other hand we have a larger amount of barley and

rye available, because we have no production of malted and distilled liquors, and this means that these grains will be more available for feed than before. We have in the West a large crop of all forms of coarse grains. We have a bumper crop of corn, with the carry-over about three billion four hundred million bushels. The country was never so long on feed as at present. This would naturally mean, other things being equal, with a stable price in view, a large production of animal products at a low price.

If this could occur, it would provide one basis for reduction in the cost of the diet in the American home, without material change in the direction of outlay. Unfortunately, however, this calculation runs counter to the fact that we have not the animals. We have lost about ten per cent of cattle and six per cent of swine in the last twelve months; special counts were made on the first of August of this year and last year, giving this result. So we have the anomalous situation of eighteen per cent above normal in feeds, ten per cent below normal in cattle, six per cent below normal in swine, and no possibility of making it up this year. Therefore, no matter to what extent the prices of oats or corn may fall, even to the pre-war level, it cannot be expected that a large volume of animal products above that of last year can be secured, on account of the scarcity of animals.

To what is the scarcity of animals due? It is due to the inability of the farmer to see a continuation of the market demands of the past two years. Three years ago we exported a very large amount of animal products. Two years ago it was still large. Last year it dropped heavily. Next year it will probably drop back to the pre-war level. This has been due to the fact that three years ago and two years ago we were selling animal products to Europe on governmental credit.

Now, Europe does not import cash lard or beef as against cash wheat. Europe imports wheat because it gives the most calories per dollar. The result we may expect is that the exportation of animal products will descend largely. To our amazement, in the last month the money value of food imported into this country exceeded the money value of food exported from the country. How quickly the trend from a food exporting into a food importing nation is being accelerated!

What will the farmer do with the limited amount of cattle and swine and the unlimited amount of feed that he cannot sell as feed? Fortunately, all the grains are sound and dry and will not decompose. He could keep them over for another year or a second year. But the holding

of crops means credit facilities which he does not possess, unless he can secure an extension of credit which at present does not seem possible.

The farmer must attempt to market as much as possible this year. He may finish for market a larger percentage of the animals than ordinarily, which means that the count of animals would be still further reduced in another year; or he may feed the animals to heavier weights. When the farmer feeds animals to heavier weights, he disturbs certain price relations which are based upon taste. In one case he will feed in the direction of public taste; in the other, he will feed in opposition to public taste. The farmer who is feeding beeves to heavier weights, will be feeding in opposition to scientific authority; the older and larger the animals, the lower the return in meat to the unit of grain employed. The efficient method is to produce baby beef, not three and four year old steers. But in order to get as much grain as possible into the final product, since he can count his corn of little value unless he can get it into the form of meat, the farmer will be tempted to feed his cattle much longer and to heavier weights. The public likes beef from heavy weight cattle. These furnish the big cuts that the hotels and restaurants want, just as our own army and navy, during the war, made absurd demands upon the Food Administration for the largest carcasses. The taste of the American public is toward cuts from heavier beef. Therefore, if during the course of this year the farmer does what we think he will do to get rid of his corn and feeds, you may find that the discrepancy that exists now in the price of choice cuts and secondary cuts in the meat shops will become less marked or possibly disappear. The characteristic thing today in the meat market is the high price for choice cuts, with moderate prices for the so-called secondary cuts, and losing money prices on poor cuts and on the by-products. The public's predilections for certain cuts is evidenced in the buying price. Before long you may find the price of the choice cuts reduced largely, and prices equalized. The other day, when corn sold at ninety cents in Chicago and at seventy in the western plains, prime steaks registered a very high retail price. Now this discrepancy should disappear. Certainly the feeding for larger beeves will please a more satisfied American customer.

It will be just the reverse, however, when it comes to hogs. Public predilection is for lean bacon and small hams. The public likes the products of a pig that does not weigh over one hundred and fifty pounds. If the farmer, in order to get rid of his feed, feeds the animals to a much

heavier weight, this will mean that ham and bacon of the kind that Americans like will become scarce, that mess pork, large hams, and lard will become more plentiful. The price of these three may be counted upon to fall, whereas the price of the others will be maintained or rise. We shall be offered the kinds of products that we care less for, except in so far as the use of lard in the kitchen is concerned. The final result of the operation will be to reduce the price of heavy hogs, which will still further augment the difficulty of the farmer. It may make the cost of the choice hams and bacon still higher than it is now unless the public declines to buy at those prices, and, even with the small stock, producers are compelled to reduce the prices. The tendency, therefore, will be to increase the consumption of beef, and decrease the consumption of pork, partly as an expression of price and partly as an expression of taste relations.

This is not what we desire. What we need is an increase in the production of milk. It ought to be possible to accomplish this under the present circumstances, where the drift of labor back to the farm has clearly set in. We may be assured that the price of feed will fall. Certainly feeds are today almost a drug on the market—gluten, for example. We anticipate a progressive and continuous fall in the price of the protein concentrated feeds. This together with the return of labor to the farm will enable the American dairy to increase the production of milk.

One of the things that enables a stable price to be maintained is variety of uses and diversity of buyers. During the recent years we have had a moderate export of cheese, a good export of butter, and a large export of condensed milk. These exports are certain to fall away. When Danish butter comes to New York and undersells ours, it is impossible to believe that we can continue the exportation of dairy products. We are now sending condensed milk to Europe only as a part of relief programs. The volume of milk which Asia, the West and East Indies, and some other countries took from us before the war is not enough to support the present condenseries throughout the country with more than a nominal activity. Some of them are compelled to close down. As these condenseries close down, they will throw the milk back upon the dairy. In the reduction of cattle that has occurred during the last year, fortunately only a slight reduction in milch cows is included. The cities must consume more whole milk.

We must centralize the American diet, for the period of reconstruction of prices, around bread and milk, where it belongs, not around bread

and meat. Fifty per cent of the calories in cereals (bread) and twenty per cent in dairy products would be the foundations of an ideal national diet. We must preach this and teach it at all times; for valuable as meat is in many ways, it is not to be regarded as comparable with milk in the diet, but only as an imperfect substitute for milk. During the war Graham Lusk preached correctly and effectively the priority of milk over meat. The American diet, if it is to be maintained in efficiency for all classes, must be within the buying power of the classes of lesser means. Otherwise, in the reconstruction of the family budgets, the most essential article may go out, and less essential articles will to some extent be maintained. If the farmer feeds his corn to produce heavyweight hogs and throws upon the market lard at a low price, the tendency will be to replace milk in the home with lard, both for cooking and direct consumption. This would put the people of our cities in the position which the mill operators of the South have occupied for many years, and certainly with deplorable results. If choice is to be determined solely by price, then there is a likelihood of the public consuming lard rather than dairy products. It is therefore imperative that dietitians should stand before their communities and preach and teach that under no circumstances should the milk of the diet be reduced. Reductions in price may be attained in many directions; lowering of milk consumption is not to be included. Beside milk stands bread.

There are several directions in which economy can be attained without any loss of efficiency whatsoever. We have developed during recent years an enormous consumption of fruits and vegetables, at all seasons of the year and from all quarters of the globe. When we were considering the war time restriction of imports of so-called less essential foods, we studied the distribution of tropical and other forms of fruit. Nowhere in the world is there such a consumption of fresh fruits and vegetables during the twelve months as occurs in this country. Now, it is very good to have them all. It is all admirable, ideally considered. It is healthful. But in the volume that we employ them, when contrasted with milk, they cannot be defended. If our people have to choose between less milk and less fruits and vegetables, including hot-house, tropical, imported, of all kinds, there can be no argument. In the first place, milk furnishes far more calories per unit. There are fat-soluble vitamins in certain vegetables, it is true, but the milk has also balanced protein. The whole diet rotates about milk in the preparation of food, and it cannot be replaced.

I have seen people trying to live on leaf vegetables, which contain the vitamins found in milk. They get their vitamins, but they do not get much else. Of plant products the seeds contain the least fat-soluble vitamin and the most calories. Roots and tubers contain less calories and more vitamin. The leaf vegetables contain the least calories and the most fat-soluble vitamin. Milk contains everything but roughage. The leaf vegetables are to be highly prized, but vegetables as a class cannot be compared with milk. The reduction must come chiefly in hot-house and tropical fruits and vegetables, and in domestic products that are transported long distances. This does not mean a lowering of the standard of living. It means merely a return to the simplicity of use that even the wealthy classes had only twenty years ago.

Another question is that of sugar. Pre-war sugar was a very cheap food. Sugar at twelve cents a pound retail is still cheap food, much cheaper than the meats. Even sugar at twenty cents a pound is cheaper than many meat products. But it is not the price of sugar with which we are concerned, it is the form in which it is consumed. It is not consumed as sugar. It is consumed largely as confections. We do not want less sugar consumed, we want it at a cheaper price. The sugar cost of a pound of candy is not over six to eight cents. The price of a pound of candy varies from thirty cents to two dollars. We must not confuse sugar consumption with confection consumption. The difficulty with American consumption of sugar is not that it is too high but that it is consumed in a mass of other materials, and we pay so much for labor, rent, overhead, wrappings, and profit that the retail price paid by the individual is entirely out of proportion to the sugar value or food value of the commodity.

What we suggest for the American home is not reduction of sugar at the table or in the kitchen. We need a reduction of sugar in the form of its more expensive manufactured states—confections and beverages. It is hygienic to consume sugar in the form of candy with the meals. It is just as good as in the form of straight sugar. But the latter costs now twelve cents a pound and the other costs multiples of that. If we could reduce the cost of the sugar that we consume, let us say eighty-five pounds a year, by changing the form so that we consume it as we buy it and do our own fabricating, if you please, rather than buy so much in a highly fabricate form, it would result in a very large saving. If we are going to cheapen the American diet without reducing its quality, we must do so by increasing the consumption of bread, increasing the

consumption of milk, and by decreasing the consumption of certain fruits and vegetables, by reducing the consumption of meats and meat products, and by holding the consumption of sugar to the amount we are accustomed to, because it is a cheap food. But let us consume sugar more in the form of sugar and less in the form of confections of all kinds that bear a very high cost of preparation and marketing as related to the actual cost of the sugar components. Is it not possible to go back to the sugar consumption of twenty years ago, when we consumed more in the dining room and less in the parlors and on the street?

These are the only ways in which the American diet can be cheapened and not be injured. We must not permit the diet to be injured. We are the best nourished people in the world. We have acquired rather elevated ideas, as a whole, in regard to what constitutes a proper and normal diet. It is our duty to teach the American public how to spend materially less money, since we are going to have lower incomes. We must consume less and save more if we are to pay our debts. If we do not do this, we will at once provoke class contrasts; and class contrasts today are not only unfortunate and unjust; they are very dangerous.

The chief basis for social unrest abroad is inadequate food and poor housing. Now the term "poor food" is partly relative. In some countries it means actually poor food. In other countries it means merely a reduction from the accustomed standards. This leads to discontent as the people think lower standards of living are due to the government in power; that if they could change the government it would mean a lowering in the price of commodities and increase in diet. Now this is impossible, of course, but it constitutes the basis for social unrest. People fancy that if things were better managed they would not be compelled to change their diet or reduce their standard of living. It is inevitable. It must occur to some extent here. It must occur in South America. It has occurred in Japan as it has occurred in England. It must occur everywhere for the simple reason that if the fiscal affairs of the world are properly run, the resources are not sufficient to maintain our inflated standard of living. If we are going to pay our debts we cannot eat and drink and play as we are doing. If we are going to repair the ravages of war we have to save, and that means a reduction in the total plane of living so that the national net income that is saved becomes augmented. We must produce more and consume less.

This becomes a practical problem for all Americans. We cannot maintain our present high plane of living while the other nations live

on a much lower plane. This means isolation here and bitterness everywhere else. It is fortunate for the American people that deflation has come before the contrast between us and the other nations had become more pronounced. We must use every effort to influence the trend of price deflation in the direction of normality of consumption. The readjustment that is inevitable should be done equitably, fairly, efficiently from the standpoint of the purchasing power, justly from the standpoint of the social consciousness, in a manner to give satisfaction to all classes of our population.

COÖPERATIVE SERVICE BETWEEN THE TEXTILE LABORATORY AND THE MERCANTILE WORLD¹

GRACE G. DENNY

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My subject may be boiled down to a simple question: What help can a teacher of textiles give and what can she receive from the business people of the community?

I say "business people," because the relationship may not be limited to department store merchants. Everyone who handles fabrics has a point of contact for the textile teacher. There are cloth mills, knitting mills, clothing factories, laundries, cleaners' and dyers' establishments, wholesale and jobbing houses, importers and exporters. All who deal in textile fabrics can contribute something of value and no doubt need help which the textile teacher can give. However most of her dealings are with salespeople in drygoods stores.

Just how one department of home economics has become connected with the business people of the city illustrates a phase of this coöperation. The experience represents seven years of neighborliness with the merchants, coming about in the most natural way. Questions were always arising in regard to materials which the text or reference books did not answer. The simplest thing was to ask someone who had expert knowledge. Such persons are found in high class department stores.

¹ Presented at the Thirteenth Annual Meeting of the American Home Economics Association, Colorado Springs, June, 1920.

While shopping for samples for the laboratory, I found a salesman in the linen section at one store who had a wealth of information on the growing and preparation of flax, the different grades of linen and conditions in the linen market. He was delighted to find someone who cared about these things. He loved to tell of his boyhood duties in the flax field and later apprenticeship in a mill in Scotland. Here was a man who could present the subject of linen much better than any laboratory-trained teacher. The next step was to get permission for classes to visit the store, see the linens, and have Mr. Blank explain the stock. The students, first having learned what they could from books and the limited supply of fabrics in the laboratory, were intelligent listeners. Many of them were expecting to buy linens soon and took a more vital interest because of that in the qualities and prices.

In another store, a rug salesman was discovered who has expert knowledge and the ability to impart it. When showing a wool beside a worsted wilton he allows the students to test their book knowledge in a practical way. Mr. Rug Salesman now looks forward regularly to visits from classes. The students consider this event one of the treats of the course.

There is a buyer of silk and wool goods who is a positive inspiration. He always has some new thing to show or some interesting bit of trade news he has just brought back from New York. Perhaps he has been through another factory and bought some illustrative material, such as sample cards from a Jacquard loom or photographs of fabric printing.

A young woman of unusual taste and intelligence in another store buys lingerie and infants' wear. She makes it her business to give any information wanted, lend any merchandise, receive students and speak to them. When infants' clothing, for example, is being studied we borrow complete layettes, varying from the most delicate handmade batistes to an outfit supplying only warmth and utility. This is, of course, good advertising; yet the buyer is free from any hint of it. She seems to want only to coöperate with the University.

It is not always when asking for help that one learns from these specialists. Often in passing through the store a little friendly chat will bring out information regarding goods or market conditions, which would not be gained from trade journals.

Care is taken not to cultivate one store more intensively than another. Materials for laboratory use are bought from different shops in their turn. This shows the students that no store is given preference. It

also affords opportunity to make connections with more buyers and store officials. Often a salesman hears about the textile laboratory for the first time in this way. He becomes interested. He is invited to the Open House, or Annual Exhibition of the Home Economics Department and from that time feels an interest and pride in the textile laboratory at the University.

There is all the excitement of a game about discovering new people in the stores who are interested in educational work.

The same generous spirit has been shown by wholesale merchants and manufacturers. Expert advice has been received, samples and permanent exhibits have been prepared and placed in the laboratory.

The mills and factories have been opened to classes of students. Another source of help has come from the Industrial Bureau of the Chamber of Commerce, which has investigated possible textile manufacturing for the Pacific Northwest. Much valuable data has been received before it was made public in print. Editors of technical business magazines have been very willing to answer questions of practical interest. Trade journals dealing with fabrics and wearing apparel prove stimulating and informing.

The local merchants began, before long, to send materials to the laboratory to be tested. The most common inquiries were in regard to cotton and wool mixtures, the way fibers are combined, or, perhaps percentage composition, or the distinction between fiber and real silk. These tests were sometimes made with student help as in the preparation of a large number of microscopic mounts. The test in question was always brought before the textile classes so that they might see the application of what they were learning.

Though contact with department stores has been more frequent than with other firms, tests have been made also for a men's clothing company, a wholesale dry goods house, an importing firm and a large laundry. Usually the question calls for some knowledge of textiles which few commercial chemists have. For instance, when a laundry wanted collars of pre-war quality compared with more recent make, no chemical skill was needed, but ability to use the micrometer for making thread counts. The variation in the number of warp ends and picks per inch in the sample collars submitted settled a disputed point.

The benefits of this sort of coöperation are intended for the student. Whether that student be a college freshman or junior, or a housewife in an extension class, or a young man from a department store, the

reaction is the same. All feel added confidence in tests which are of value in the business world. They see problems in testing instead of mere laboratory exercises. They are kept up to date on merchandise and find that "textiles" is a live subject, one which cannot be learned from the library alone. They gain an appreciation of market conditions which often explains the situation in which the merchant is placed. They see him, not as a cartoon figure, but, as a serious student of business affairs beset with many problems. Those who go out to teach retain this sympathetic attitude toward the small merchant in the small town, and establish relations similar to those which they have observed in the college laboratory. They also feel an increased interest in a course which may lead directly into a vocation.

A young lady walked into a Seattle store and inquired for the employment manager. It was after his office hours. The man who happened to answer her was the buyer of silks. He asked if she wanted a job and if she had had experience. She replied that she had no experience but she had taken a course in textiles at Ohio State University. He offered her a place in his own department and has found her unusually efficient.

One of my former students who had dropped out of college was working as a wrapper in a basement salesroom. She had not thought of asking for anything better. The buyer in charge of the section discovered by chance that she had studied textiles. He immediately had her put on his sales force, where she has opportunity to advance as fast as her ability permits.

A number of students, whose fathers are small town merchants, take the textile course with keen interest. They frequently bring in fabrics from the home store to test. This forms an indirect connection with stores throughout the state.

One phase or outgrowth of coöperation is the establishment of a four year course called Retail Store Selling. This developed in the department of home economics and, since the establishment of the College of Business Administration, is offered jointly by both departments. Textiles is a requirement for all freshmen. Practice in selling in stores, under supervision, is required before graduation. This training will prepare for educational directors in stores, high school teachers of retail selling, personal service work, or may lead to the position of assistant buyer or buyer.

In the beginning of this relationship between store and laboratory the work was not at all organized. Educational training for salespeople

had not been developed in the West. It was a novel idea to have some one come to the store and lecture on textiles.

I shall never forget my first experience before a group of salespeople. There were forty present. I went before them with fear and trembling. After my kaleidoscopic speech (I attempted to tell them all I knew of the subject in one hour!), I offered to make clear any points I could by answers to questions. One man quizzed me rather severely on several items. I wondered if he really wanted to know all the details he was asking about so intelligently. After he had apparently satisfied himself, he said, "Well, you're *right*!" I found later that he was one of the oldest and shrewdest buyers in the store and was very skeptical of college trained people in business.

Other stores have requested lectures, or a series of lectures, before various groups in the establishment. An advertising manager, wishing to introduce an educational feature, had popular talks given for the public during "Silk Week." A course of ten weeks was given in the same store through the extension division. In this class of fifteen studying textiles, there was not one person selling yardage. All were executives or in clerical or service departments. The man who had charge of adjustments found the work of immediate practical value in handling merchandise. Two members of the class later became trained educational directors.

From these various calls, a new type of work has developed. In June I finished a course, covering the spring quarter, which was requested by our most conservative store. This class was not for salesmen but for buyers—most of them with ten to twenty years of store experience. Five high school teachers of retail selling were admitted. Four persons in service departments, including the educational director and the fourteen buyers, comprised the class.

These men and women represented a wide range of merchandise, men's clothing, women's clothing, boy's clothing, yardage in wool, silk, linen and cotton, drapery fabrics, millinery, laces and trimmings, art needlework and lingerie. One man has charge of a large section for which he buys twenty-three lines of stock. They came to the laboratory in the evening and made tests and judged fabrics like any students. They proved to be the most interesting group I have ever taught. In fact they taught me and taught each other many things.

There was often lively debate over some question of terminology and sometimes the text books were found in error. Several members of the

class had visited mills and could give excellent descriptions of processes. On the other hand, many were chagrined to find how little they knew of merchandise in a neighboring section of the store. Almost every week some one came with a sample to be analyzed.

One time the young man from men's furnishings brought out wool hose which had been washed for shrinkage. He had found a difference in two kinds which were presumably all wool. One was imported and did not shrink in the least. This mysterious fact was explained after they had tested the fibers and found the yarns in both all wool and were shown the character of each. The non-shrinking hose was made from a very fine, very tightly twisted two-ply worsted yarn, while the other, although worsted, was single-ply and slightly twisted. The enthusiasm over these discoveries and the pride in making them surpassed by far the most brilliant and interested of college students.

The immediate usefulness of the course was indeed gratifying. One man said he gathered his sales force about him on Tuesday morning and told them what he had learned the night before. A salesman said he had never known how to tell the right from the wrong side of serge until the buyer came and told them what he had learned about weaves. Likewise the question of the right side of damask was a point of interest to some. A buyer, in the class, told the educational director after the first night, that one lesson was worth \$5.00 to him. Growing interest in the work is evidenced by the request from this store alone that two courses be offered next year—one for buyers and one for assistant buyers.

Through these various avenues of commercial activity the textile laboratory is given opportunity to function in the community. In short, there is coöperative service between the textile laboratory and the merchantile world.

THE FOOD OF THE IMMIGRANT IN RELATION TO HEALTH¹

MICHAEL M. DAVIS, JR., AND BERTHA M. WOOD

The Boston Dispensary

THE POLES AND OTHER SLAVIC PEOPLES

The Polish people introduce us to a northern climate where the summers are not so long as the winters. Very few of the people from the cities of Poland come to America. Those we find here are the peasant class. They have lived on farms where they raised grain and vegetables that develop during a short season, such as beans, carrots, turnips, parsnips, cabbage, lettuce, and other summer vegetables. Tomatoes are not raised, nor are they known to the people outside of Warsaw. They raise stock from which they get milk and meat. In the winter they are fond of hunting and they know many ways of cooking game. Many spend their summers farming and their winters lumbering. Wood is used almost exclusively for fuel. Great ovens are built out-of-doors, where quantities of food are prepared to be stored away for winter use.

Meat has a prominent place in the Polish diet—beef, veal, and pork being the kinds most commonly used. These are roasted or used in combination with vegetables and boiled. Pork is perhaps the favorite kind, and they have many ways of making it into sausage and of smoking it. When smoked it is often covered with mace to add flavor. This is not only true among the Poles but also among other Slavic people. Pork is frequently used with beef and made into puddings or loaves.

In the winter the only fresh meat used is game, and it is customary to roast this over an open fire. The skins are used for clothing, including shoes. It has been in very recent years only that floors have been laid in the country homes, families heretofore going barefooted on dirt floors.

Fish is used fresh in summer and pickled in winter. It is rarely preserved by salting. In some restaurants of the large cities of Poland and Russia there are tanks or aquariums filled with edible fish for the enjoyment of the guests, who designate to the waiter the kind of fish they prefer. It is then taken from the tank and prepared. Fish is boiled or baked but for special occasions the best cooks prefer to make it into cutlets. These are cooked fish blended with a sauce or gravy and shaped, then fried or baked, and served with a sauce or gravy.

¹ The first article of this series appeared in the December JOURNAL. The series will be concluded in February.

Potatoes are served at almost every meal. The preferred grain among all these people is barley. The Poles use cornmeal and oats also.

Eggs are the dinner dish on Wednesdays and Fridays in place of meat. Sometimes chickens or ducks are used.

When a family arrives in this country it is confronted by many new and strange appliances, such as agate and tin cooking utensils instead of copper and iron, and "so many kinds to learn how to use"—double boilers, "funny egg beaters that you turn as you do a hand organ," bread pans, and egg poachers. Then there are "stoves with no fires in them an no place for the wood, just holes in irons, and if you turn a handle and apply a lighted match fire comes."

The clothing is queer, too. Hats made of straw or felt are such wonderful things compared with kerchiefs. Other clothing seems of such light weight material, even in winter.

When the man of the family gets his first job, it is as a laborer, sometimes building our railroads, bridges, or subways. He generally carries his noon luncheon and it consists of bread broken from a loaf, either round or oblong, whichever is the convenient shape to fit the oven. With this he may have some bizes, if he is Polish. Bizes is made of two kinds of sausage, red and white, sauerkraut, tender beef, pork and barley, all boiled together until thick, and known as pudding. When cold it is sliced and eaten either cold or warmed. The laborer has no place to warm it, so he eats it cold. In his own country bizes was one of the luncheon meats taken when hunting, and as he sits on the curb, or out along the railroad he is helping to build, he enjoys his lunch, accompanied by memories of one of those hunting expeditions and the friends who were with him.

The family diet slowly changes from flour gruel and potatoes, with coffee, for breakfast. The custom of eggs for dinner on Wednesdays and Fridays they continue as long as they are able to afford it. In winter because of the high price of eggs and because the man is out of work, they must hunt a substitute, or what is more frequently done, eggs are left out and no substitute is provided. Flaxseed oil is their favorite fat. This is hard to find here and this necessitates learning to use some of the vegetable oils which we have.

The Polish children and those of the other Slavic people come from a sturdy race. Upon arrival in this country they have round well-shaped heads, rosy cheeks, and strong bodies. With their kerchiefs over their heads they make fascinating pictures of health. They have had an

abundance of milk and fresh air in their own countries. Here they live at first in crowded districts and milk is counted as a drink, not something to eat. Therefore, because the family income is small, it is almost entirely left out of the diet. If these children are fortunate enough to belong to Polish families who have saved and bought land in the country, in order that the men might grow tobacco or have onion farms, then the family will keep goats and the children will have milk, fresh air, vegetables, and fruit. Otherwise they eat what the grown-ups have, and they pay the price. Sometimes they are constipated, with accompanying ill-feelings; sometimes they are under-weight.

In cases of undernourishment among the children, it is always necessary with the Slavs, as with all other foreign-born people, to prescribe milk and to help plan the food budgets so that milk may be included in the children's diets. Among their soups, children may have *roselzla-zankamt*, a consomme with eggs dropped in it. Eggs are beaten as for scrambled eggs and dropped into the hot soup by small spoonfuls just before serving. They may also have chicken soup or *krupnik palski*, which is prepared with barley. Cereals are eaten not only for breakfast, cooked in milk, but often in soups or baked and served with meat. As vegetables are seldom cooked and served without meat, it is necessary not only to prescribe them, but also to show the family how to make purees and to cook plain vegetables. *Kieselle* is one of the desserts children like; it is made of blackberries, raspberries, or black concord grapes.

A constipation diet is a very easy one to find for these people as they naturally are large vegetable eaters. *Szynka pieczona zkasza*, ham roasted with cabbage, or *rozbiantere dusgony*, roast fowl with vegetables, illustrate how inseparable are their meats from their vegetables. *Dusgony* or vegetables they welcome on a diet list. Cereals in the form of coarse or whole grains they use. These will come under the name of *kasga*, which is boiled in milk or baked in water with milk and fat added during the baking to give moisture.

The diabetic patient finds consolation in the number of fish dishes known to the Polish and Russian folk. *Ryba wgalarecle*, or fish in jelly, is much enjoyed. The jelly is made with lemon and the first layer often has chopped cabbage or celery in it. When this is set, the fish, already boiled, is placed upright in it and more cooled jelly added to cover the fish. Pigs' feet in jelly is another favorite dish made of the gelatine from the feet of the pig, with meat from the hocks. *Ciely*, or

veal roasted or made into cutlets, may be used; also pork or wieprzony prepared in a number of ways. Sledy pocztomy or maatjis herring is often used for supper.

For nephritic patients it is again hard to separate their protein from their vegetables. Their vegetable soups are made thick with vegetables and in this way they can be given in a diet. Zupa jarzynowa is vegetable soup made with a foundation of chicken stock and any or all kinds of seasonable vegetables added. Soup or rosal with makoronom or noodles cannot be included but borszoz zabillang can be given. It is a beet soup made by boiling both the tops and the roots of beets with the addition of fat and sour cream.

Tuberculous patients will enjoy many of the smietanie or cream sauces which are used for vegetables, meats, and game. Ovsyanka is a very good oatmeal soup.

The following story illustrates how a sympathetically prescribed diet, recognizing the value of familiar national foods, aids in winning the heart of people. A Russian woman was asked to interpret for a Ukrainian at a Food Clinic. She was not much interested at first, but when some of her well known foods were mentioned she looked up and said to the dietitian, "I only been here in this country three years, but you my sister." She then not only urged the patient to use the food prescribed, but was much more diligent thereafter in her own regimen.

THE JEWS

The wanderings of the Children of Israel since Bible times have made them an international race. They are known to all countries and have adapted themselves to different climates and products. Because of these conditions they have a more varied dietary than any other people. They have acquired the use of Russian, Polish, German, Spanish, and Italian foods, and have adapted them to their dietary laws. It is essential that the Jewish dietary laws² be understood, at least in general, by all who attempt medical or social work among Orthodox Jews.

When the Jew arrives in this country, some of the limitations of his diet, if unchanged by instruction, are evident. Many of the Jewish people who come to America have lived much of the time out-of-doors, worked out-of-doors, and played out-of-doors. Here many thousands of

² An account of Jewish dietary laws may be found in Jewish Dietary Problems, by Mary L. Schapiro, in the JOURNAL for February, 1919.

them are tailors, sitting all day indoors at their work, having little exercise or fresh air. Many of them pay little attention to their diet during the week, until their Sabbath. Then on Friday night, Saturday, and on our Sunday, which to most of them is a holiday, they have a feast time. On Friday all the cooking is done for the next two days. Chickens are cooked, soup made, and kuchen (cakes) and mehlspise (flour mixtures) prepared. The result of these weekly feasts is that many of the Jews eat too much, or have not a well-balanced ration. By nature the Jews are an emotional people. A slight physical discomfort usually sends them to a doctor where the readjustment of their diet many times would produce a cure.

The dietary restrictions of the use of butter and meat at the same time limit the use of vegetables. Jewish people are therefore not as fond of them as they ought to be for their own physical well-being. Rich foods are customary in Jewish families, and it is with difficulty that a taste for the simpler foods is cultivated. One must not forget that the Jewish housewife utilizes a small amount of fresh meat in dozens of ways. Jewish women have long known how to use honey, molasses, and syrup in place of sugar. Sugar has often been a luxury in the countries from which they come.

They have also been fond of rye, barley, oats, and buckwheat. These cereals have been used both in puddings and soups. Probably no other people have so many kinds of "sours" as the Jews. On the other hand they have little knowledge of stewed fruits, but do have many kinds of rich preserved fruits. All these highly seasoned foods they have in abundance. In the Jewish sections of our large cities, there are storekeepers whose only goods are pickles. They have cabbages pickled whole, shredded, or chopped and rolled in leaves, peppers pickled, also string beans, cucumbers—sour, half sour, and salted—beets and many kinds of meat and fish. This excessive use of pickled foods destroys the taste for milder flavors, causes irritation, and renders assimilation more difficult.

In prescribing diets for the Jewish people it might be helpful, both to the person who prescribes and to the patient for whom the diet is prescribed, to remember that all their foods may be classified under three heads: (1) meat or fish, (2) milk and its products, and (3) neutrals. *Meat and milk are never mixed.* Neutrals may be used with meat or with milk products but never with both in the same meal.

The Jewish children suffer from too many pickles, too few vegetables, and too little milk. Since they cannot drink milk with their meals if they have meat or fish, mid-morning and mid-afternoon meals of milk have to be introduced. This is impossible if the children are in school, unless there is a school lunch. Enuresis is quite common among these children, as they are accustomed to having highly spiced foods in their diet, with pickles at and between meals.

For undernourished children among the Jews, it is necessary not only to urge the use of milk, but to plan *when* it may be taken. Vegetables are usually needed in greater abundance. These may be eaten in borsch, a favorite soup such as our vegetable soup, but this does not give them in very large portions; therefore a menu should be given to show how they may be combined with other foods, remembering that, if served with a white sauce or butter or in the form of a cream soup, they must be eaten without meat, but can be used at the noon meal or lunch with bread. Poached or "dropped" eggs are not often used. The process is unknown. A "dropped" egg was prescribed for a patient who did not know what it meant. When it was explained that an egg was broken and its contents dropped into hot water, he shook his head and said, "Oh, no! I lose my egg; he get all mixed with the water." When he was taken to the stove and saw an egg poached, he stood in wonder and admiration. He said, "I go home tell my wife, she never knowed that." Since then many mothers and even children themselves have been shown in this same food clinic how to poach eggs.

Cereals are not used as a breakfast food because of the amount of work required to kasher them in large quantities. All cereals must be tested as follows: "Place them on a hot plate. If no worms or other insects appear they are fit to be eaten, if not fit they must be thrown away." The cereals used by the Jewish people are barley, oats, buckwheat, and rice. These are baked in a pudding and eaten with meat. Children soon learn to eat cereals boiled with milk and will learn more easily if raisins are added.

In the treatment of constipation, which is very frequent, cereal pudding or krupnick is given. Six glasses of water a day are prescribed, "to kasher the intestines," also rye bread or "Jewish black bread," and borsch once a day.

There are many Jews who have diabetes. When prescribing for them one has not only to give a new dietary, but also to teach the ways to cook the foods allowed. For example, they have been accustomed to

having vegetables in small quantities, cooked with beef; but for the diabetic, this is excluded and new forms of cooking vegetables must be introduced. All non-carbohydrate vegetables after cooking may be served with drawn butter, white sauce, or a hollandaise sauce, or with salt and a small portion of lemon juice or vinegar. Green peppers stuffed with vegetables are another pleasant variety. As the Jewish dietary does not allow shell fish or tripe, no thought need be given these, but liver is frequently used, kashered over the fire. This must be specified as not allowed in the diet.

Before Passover the patient must be warned not to eat Mazzah or unleavened bread which is made of flour, salt, eggs, and water in the form of large crackers. Eggs baked in spinach or scrambled with mushrooms may be ordered. The Jewish people are fond of the flavor of almond omelet. Eggs scrambled with vegetables and baked in a nest of vegetables are two of their favorite ways of preparing these foods.

In cases of nephritis, all pickled foods should be discouraged, also the use of "sour salt." Almost all their soups are low in protein. Many of their meat dishes have little meat in them.

The diet for a Jewish tubercular patient would have less of the carbohydrates and more of the protein foods than is usually found in the Jewish daily dietary. Milk and eggs may be given between meals, both in the mid-morning and mid-afternoon, and before bedtime. Milk dishes of all kinds, from a plain boiled or baked custard to a Bavarian cream, will have to be taught in exchange for some good recipe for soup which the patient may furnish. Once more the staple borsch may be used, made without meat and with the addition of sour cream. Sour cream is a favorite dressing for berries or fruit and may be used freely by these patients.

The Jewish housewife has had to adapt herself a number of times to new foods and their preparation, each time remembering her dietary laws and arranging the recipes to conform to them. This fact makes her an apt pupil.

GASTRIC RESPONSE TO FOODS¹

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This paper consists largely of the summaries (quoted literally) of thirteen papers. Their interest for the teacher of dietetics is great, but caution must be observed in attempting to generalize from these results for the benefit of the "lay mind."

The figures given in connection with acidity determinations, indicate the numbers of cubic centimeters of tenth-normal potassium hydroxide necessary to neutralize 100 cc. of gastric juice. "The curve of acidity may be taken as a measure of the glandular response of the stomach." Naturally a delayed evacuation time gives rise to a higher acidity than does a shorter time, *provided other factors are approximately equal*—since the secretion of gastric juice is continuous over the entire period of gastric digestion, and since the successive disappearance through the duodenum of those portions of the food mass which are earliest digested results in higher and higher concentrations of undiluted gastric juice. However, the amounts of total acid evoked vary greatly with the type of food material, in the same stomach, and under the same conditions, as is well known; proteins, for example, giving rise to a relatively high secretion of acid; fats and sugars to a relatively low one, even though their stay in the stomach is greatly prolonged. Also, "it is necessary to carefully distinguish rapid emptying with high acidity (a normal response) from rapid emptying with low acidity which is usually pathological and is readily brought about, for example, by a cold. No experiments on the latter class of individuals are reported here."

The combined acidity measures the amount of acid which has attached itself to certain kinds of radicles belonging to molecules found in the food mass (e.g., to the amino-acid radicle of proteins), while the free acidity measures the acid which does not so combine. Fruits, for example, "leave the stomach very rapidly with the development of considerable free but little combined acidity." Naturally some allowance has to be made for the acidity of the fruits themselves.

However, the ultimate development of a high acidity must be interpreted in conjunction with the general form of the acid curve, i.e., with the degree of acidity developed during the earlier stages of digestion. For example, the authors remark in one instance that "a high acidity was developed on ginger

¹ Abstract of thirteen papers from the Laboratory of Physiological Chemistry, Jefferson Medical College, Philadelphia; published in the *American Journal of Physiology* and in *Science*. The exact references will be found in the bibliography that will accompany the second installment of this article.

snaps, but this was very slow in development, indicating that the ginger depressed secretion."

The authors emphasize the fact that different samples of the same kind of food, varying as they do in moisture content, in proportions of protein, fat, sugar, etc., in texture and consistency, must be expected to give somewhat different results even in the same stomach. A study of the digestion in the same stomach (or in each of several stomachs of different types) of food samples made from weighed amounts of uniform materials, by identical formulae and with unvarying manipulation, so as to be approximately uniform in physical and chemical characteristics, will doubtless yield more strictly comparable results for the use of the cook who must minister to the delicate or abnormal or temporarily incapacitated stomach. Yet this extensive series of experiments reveals the ability of the stomach of the healthy adult man to care for a large variety of food materials, i.e., the rather wide margin of reserve power, which leads to its comparative indifference, so to speak, to the great differences in physical and chemical characteristics between such materials as mashed potatoes and fried potato chips—to choose a single illustration.

It should of course be remembered that these studies refer merely to gastric digestion, and do not indicate in any way the degree of completeness or thoroughness of digestion, at the end of the process.

I

The first of these papers describes a certain piece of apparatus devised in this laboratory for the study of intragastric conductances and temperature determinations without disturbance or removal of gastric contents; and discusses the causes for rise of conductance with the introduction of water or various foods into the stomach, with the swallowing of saliva, and with the regurgitation of pancreatic juice or bile.

II

The second paper describes certain studies on milk coagulation made with an individual "who had the unique ability to deliver samples of stomach contents at will." The conclusions contain the following deductions: Raw whole cows' milk forms a large hard curd, whereas boiled milk curdles in a much finer and softer form. Pasteurized milk showed smaller curds than the raw whole milk but larger than the boiled whole milk. The drinking of 500 cc. or about 1 pint of a very rich pasteurized cream (40 per cent milk fat, a "whipping cream") caused the formation of particularly soft curds after a delay of half an hour (instead of about

half a minute as in the case of milk), also a very uncomfortable heavy feeling which bordered on nausea. When a similar amount of a 20 per cent cream ("coffee cream") was drunk, the delay was much less, though the stomach emptied slowly. Skimmed milk yielded a particularly hard curd due to the absence of fat. Cold milk coagulated more slowly than did warm milk. Milk drunk very slowly, or "sipped," coagulated in larger curds and left the stomach more slowly than did a similar sample of milk which was drunk very rapidly.

III

The third article in the series deals with the digestion of beef and beef products (cooked in various ways) in the stomach of normal men, using the fractional method of gastric analysis. Over 70 different experiments were made on 25 different subjects, who were classified as belonging either to the rapid-emptying type or else to the slow-emptying type. The average evacuation time for beef (100 grams, or nearly $\frac{1}{4}$ pound) was in the former case 2 hours and 35 minutes, in the latter case 3 hours and 25 minutes. As to methods of cooking, the report gives the following statements:

Roast beef appeared to be handled by the stomach with about the same ease whether rare, medium, or well done, although the rare beef had perhaps a slight advantage in this respect. Beef steaks appeared to be just as readily digested if cooked rare as if medium or well done. Very tough steaks from the cheaper and tougher cuts of meats such as rump and shank showed distinctly more rapid evacuation than sirloin or the best tenderloin steaks, in the same individuals. Roast beef was found to lie between these two classes of steaks in gastric response and evacuation time. Hamburger steaks were found to leave the stomach in about the same time as an equal weight of roast beef under the same conditions.

Stewed beef was handled by the stomach in practically the same time as roast beef, but with a less rapid development of acidity. The response to boiled corned beef was similar to that of roast beef or stewed beef. Acid production may, however, be slightly delayed in the case of corned beef. Dried beef was digested with almost the same ease as ordinary roast beef. There may be a slight delay due to the low moisture content if the meat is eaten dry. Beef bologna was handled by the stomach in the same length of time as roast beef. Calves' liver required a slightly longer time. Beef tongue was less readily digested than dried beef. Frankfurters left the stom-

ach rather quickly, as did also sweetbreads. Tripe was digested a little less rapidly than roast beef.

IV

The fourth paper reports similar studies made on the gastric digestion of pork and pork products. The average evacuation time for stomachs of the rapid-emptying type was 2 hours and 45 minutes; for those of the slow-emptying type, 3 hours and 40 minutes.

Pork products in general were comparatively slow to leave the stomach as would be expected from their high fat content. The differences were not as great, however, as some figures in the literature indicate. Thus roast pork was retained appreciably longer than roast beef in most instances. Pork chops required about the same period of gastric digestion as roast pork. Fried ham also required considerably longer to digest than roast beef. Minced ham showed a slight advantage over boiled ham as to evacuation time. Acidities were also more rapidly developed in the former instance. Roast beef was handled somewhat more quickly than either.

Liver and bacon required about the same period of digestion as roast beef. In certain instances liver and bacon were handled more readily than liver alone. In one case the contrary was found. Pork sausage was somewhat more easily handled than were pork chops but less readily than roast beef. Ham bologna required about the same time to digest as fried ham or as the less readily digestible beef steaks. The evacuation of bacon was found to be slow and low gastric acidities were developed. Ham sandwiches were more readily handled than other pork products tested. "Scrapple" left the stomach more slowly than pork sausage and belongs to the less readily evacuated pork products. Pigs' feet gave variable results but appear ordinarily to be handled more easily than pork chops.

V

The fifth paper gives the results obtained when lamb and lamb products were studied in the same way as had been the case with beef and pork. The average evacuation time for the rapid-emptying stomach was 2 hours and 30 minutes, for the slow-emptying stomach, 3 hours and 20 minutes.

Roast lamb and lamb chops required practically the same period of gastric digestion and stewed lamb a little longer than the other two. Sheep brains left the stomach rather rapidly ($2\frac{1}{2}$ hours) and developed a lower acidity than the other meats. Lamb stimulated acid production fully as much as any other class of meats and apparently to a slightly greater extent than beef or pork. The average total acidity at the height of digestion was 134 (beef 120, pork

117). On the average, roast lamb remained in the stomach a few minutes longer than roast beef but not as long as roast pork.

VI

The sixth paper presents the results of 90 studies on 18 different subjects, with eggs, using the same method. Two eggs (about 100 grams in case of hens' eggs) were fed in each instance. Rapid-emptying stomachs required 2 hours and 15 minutes for evacuation, slow-emptying stomachs 3 hours and 5 minutes. The eggs produced less stimulation of gastric secretion (average high acidity, 80) than did meats.

Raw egg white left the stomach much more rapidly than any other form of egg preparation. A moderate secretion of gastric juice was induced in subjects of a high acid type, but this did not become apparent until most of the egg white had left the stomach without being acted upon by the gastric juice. Egg white with 200 cc. of distilled water produced a more marked stimulation of acid secretion. Egg white with 200 cc. of orange juice led to a distinct gastric secretion and a rapid evacuation of the stomach.

Raw egg yolk required much longer to leave the stomach than egg white and higher acidities were developed. Whole raw eggs resemble egg yolk in their response whether unmixed or strained through cloth, showing the same delayed evacuation and greater acid stimulation as compared with egg white. Raw eggs produced somewhat less stimulation of acid secretion than boiled eggs and remained longer in the stomach. Hard boiled eggs required on the average a few minutes longer for gastric digestion than soft boiled eggs but the acid response was similar in the two cases.

Scrambled eggs required a little longer to leave the stomach than boiled eggs. Fried eggs were handled as readily as soft boiled eggs or any other type of cooked egg. Eggs scrambled or fried with a large excess of fat remained in the stomach a little longer, the difference being most marked with the rapid-emptying type of individual. The belief that fried or moderately greasy foods give the stomach appreciably more trouble than others was not supported by our findings. The response of the stomach to plain and Spanish omelets was found to be quite similar. Omelets remained in the stomach as long as scrambled eggs and longer than boiled eggs. Poached eggs, shirred eggs, and soft cooked eggs were found to be among the more readily digested forms of eggs.

Eggs pickled in vinegar were digested in the same time as the hard boiled eggs from which they were prepared. Deviled eggs remained in the stomach a little longer than plain boiled eggs. The eggs of the duck and turkey are handled by the stomach in the same way as hens' eggs, evacuation being somewhat delayed in the case of turkey eggs due apparently to their greater bulk. The Chinese preserved egg called "pidan" gave rise to delayed and

low acid responses in the stomach as well as delayed evacuation. This may have been due in part to the unappetizing character of these eggs.

Cold storage eggs (8 months), whether boiled or fried, could not be distinguished from fresh eggs as far as the response of the stomach was concerned. The same was true of the mixed frozen eggs of commerce, whether these were scrambled or used in the baking of cakes.

Eggs with milk, or egg-nog, leave the stomach a little more slowly than eggs alone, the egg albumin preventing the formation of indigestible curds in the stomach such as are likely to be formed with milk alone. Eggs with bread or French toast remained in the stomach a little longer than bread and butter alone but not longer than hard boiled eggs. Bacon and eggs were taken care of by the stomach almost as readily as fried eggs alone, while possessing a distinctly higher food value. Frizzled beef with scrambled eggs were digested as quickly as scrambled eggs alone. Eggs and meat appear therefore to form a desirable combination from the standpoint of gastric digestion.

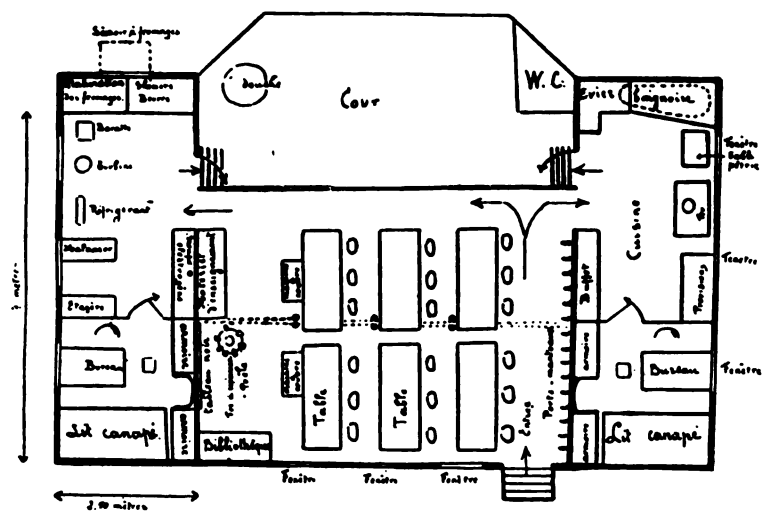
(To be concluded)

HOME ECONOMICS TEACHING IN RURAL BELGIUM

An article which M. Paul de Vuyst, the Minister of Agriculture in Belgium, has contributed to a recent number of "La Vie aux Champs" (May 10, 1920) summarizes the present teaching of home economics as a means of developing agriculture and rural life in Belgium. Aside from encouraging its extension in the general school system, the Ministry of Agriculture is including it in special schools and extension work intended for farm girls and women, where it is expected to increase the value of such farm products as are usually in charge of women, and also to improve living conditions on the farm. There are part time courses for women and girls, above compulsory school age, in movable schools, and (for special use in the devastated areas) a traveling caravan called "une roulotte" fitted up with classroom, dairy room, and experimental kitchen, as well as with living quarters for two instructors. Extension lectures and demonstrators are also to be provided, and popular literature on home economics topics is to be prepared and published. The accompanying cuts are from Dr. de Vuyst's article.



ROULOTTE SERVANT D'ÉCOLE MÉNAGÈRE AGRICOLE DANS LES RÉGIONS DÉVASTÉES



PLAN DE LA ROULOTTE

FOR THE HOMEMAKER

THE FOOD ECONOMY KITCHEN AND ITS VALUE IN THE COMMUNITY¹

MRS. HORATIO DRESSER

National Civic Federation, Boston

In all city market districts there is great food waste of fresh meat bones suitable for human food. The Boston markets alone have been sending fifty tons of fresh bones daily to the renderer, to be converted into fertilizer, glue, soap, and other commercial products, though the greater portion might be kept in condition to make a basis for soup to feed the Boston school children, while the fat from these same bones could be rendered and used for cooking purposes.

These conditions were well known to the buyer for one of the large wholesale markets, a thoughtful, public-spirited man, who felt that some effort should be made to demonstrate better uses for this material and at the same time provide nourishing soups or stews for children.

During the winter of 1917-1918, Mr. John Kelly, Mrs. Roland Baker, whom he had interested, and a group of volunteer women opened, at Morgan Memorial in Boston, a soup kitchen where soup, meat loaf, and fat were prepared and sold.

Brisket bones were used for the soup stock. These bones are usually sold to renderers without cutting off the meat between the ribs and the fat which lies at their base. The raw meat and fat cut from 250 pounds of bones, weighs about 70 pounds. Rice, barley, or macaroni, with carrots and onions, were added. The soup was sold at eight cents per quart. The fat saved was carefully clarified and sold for cooking purposes at twenty-two cents per pound. The meat was made into loaf, and sold for twenty cents per pound. Over twenty thousand rations of food and one thousand pounds of fat were saved during this initial winter season. Men, women, and children were given nourishing food at low cost—a concrete illustration of what could be done in food con-

¹ Presented at the Conference on Group Living, Lake Placid, N. Y., May, 1920.

servation, the country over, if the public were awake to the opportunity and were willing to carry on the work.

In the fall of 1918, the Home Economics Committee of the National Civic Federation enlarged the scope of the kitchen work. Beside showing a good food use for these bones, the committee wished to provide a nourishing and well-balanced "meal in a dish" for Boston elementary school children's mid-morning luncheon. On the third floor of a centrally located building in the market district, equipment was installed for making seven hundred and fifty quarts of soup a day. Steam for cooking, brine for refrigerating were available. A regular staff of two cooks and a kitchen helper, with a dietitian and part-time secretary, comprised the salaried staff. A force of volunteer women, interested in solving the difficult problem of providing suitable luncheons for elementary school children, carried on the various responsibilities such as preparing vegetables, picking fat from cooked meat, and clarifying fat. This volunteer force also helped serve the soup in the schools.

To make the "meal in a dish," shin bones bought with the meat on were added to the original formula for the Morgan Memorial soup. The meat on the brisket and shin bones was cooked separately, cut in small portions, and added to the stock. Either barley or macaroni provided the starch, and a generous proportion of onions and carrots was used. The result was a stew rather than a soup, with its caloric value a little over one thousand calories per quart.

The Kitchen was opened at 24½ North Street in January, 1918. During the nineteen weeks from January 14 to May 31, 1919, soup was sent to eight schools in Boston, eight schools in Cambridge, and seven distributing stations in the two cities. In some schools the soup was served to special classes only; in others, any child who wished to pay the standard price of two cents per cup could buy at recess the seven ounce portion of soup. At the distributing stations, and at the Kitchen, soup was sold at ten cents per quart, and carried home in containers brought by the purchaser.

The by-products also provided a source of revenue. The cooked bones were sold to the renderer, the clarified suet was sold for cooking purposes, and soap was made from trap grease.

The encouraging response of the school committee and teachers was due to the definite results which they saw among the children served, not only gains in weight, but better mental reactions and better class room conduct.

During the season from October, 1919, to April, 1920, the Kitchen confined its work to Boston schools, and gradually enlarged its scope until forty-three schools had been served in the greater Boston district.

The school committee gave the National Civic Federation committee its cordial commendation and support, and expressed the hope that during another school year many additional schools might have the benefit of this mid-morning luncheon service. The experiment has passed into an established practice in elementary school education.

THE ROLAND PARK COMMUNITY KITCHEN

ALICE E. BAKER

The motives actuating the establishment of the Roland Park Community Kitchen are found in the following leading sentences from the first "Statement and Questionnaire" sent out to residents of Roland Park about September 1, 1919. "Domestic servants are difficult to obtain and hard to keep. . . . If cooks cannot be hired, homemakers must take their place. . . . The average woman who undertakes this must reduce her outside activities to a minimum or be in a constant state of physical and mental fatigue. . . . Traditional methods of preparing food in individual kitchens are wasteful and inefficient."

Before sending this circular, the women in whose minds the idea had originated had obtained all the data available on the subject of centralized kitchens, and had received encouraging reports from three existing ones. Their investigations had convinced them that the venture, if carried out at all, would be attended with many difficulties, not only those incident to any newly established business, but those arising from an attempt to cater to the prejudices of family tastes in food. Feeling, however, that the need for what they proposed really existed, and that the conditions in Roland Park for establishing such a kitchen were in some respects unusually favorable, they sent out the above mentioned circular to learn whether an effort to organize a central kitchen there would meet with the approval of the community. Almost without exception the replies, of which more than one hundred were received, agreed

that some form of cooked food service would be a boon to the neighborhood, and the majority were in favor of a motor delivery of hot dinners.

Some women who were not especially interested in the idea of a central kitchen expressed a wish for other forms of community coöperation, such as a central laundry and an agency for domestic helpers. To enlist the interest of all such women, the "Community Service Organization" was formed, with a permanent executive committee which was to investigate what could be accomplished along these other lines and to push the kitchen project. Two addresses at the Woman's Club by Mrs. James A. Odell, of the Evanston (Illinois) Community Kitchen, aroused much enthusiasm from those who heard her, for the Evanston kitchen had all the patronage it could handle and was making money. It was resolved to imitate their methods as far as possible and to establish a shop for the sale of cooked food as well as to deliver hot dinners. The cash sale of food over the counter would help to utilize the full services of the employees and to defray the heavy expense of delivering the dinners. Later, to further accomplish the same ends, it was decided to add lunch room service.

The next steps were to secure a convenient central location for the kitchen and shop, a staff of employees, and sufficient capital to start the enterprise. Satisfactory quarters were found in the basement of the Upland Apartments at the terminus of the Roland Park car lines. Two young women with tea room experience were secured as joint managers and they found capable kitchen assistants. It had been decided to provide the necessary capital by the formation of a stock corporation. Accordingly a circular letter was sent to residents of Roland Park and Guilford, setting forth what had been accomplished toward starting a kitchen, and soliciting subscriptions of stock in the "Community Kitchen Corporation." The par value was set at ten dollars a share, in order that every family in the community might be represented in the corporation and feel in consequence a personal interest in the success of the venture. Considering the number of appeals for money at this time the response to the letter was very gratifying, both in the promptness with which it was received and in the number of persons subscribing. By the first week in January the amount deemed necessary to start the kitchen had been received, and the stock company was formally incorporated.

Equipment for the kitchen and shop were then purchased, contracts were signed, and finally on January 29, 1920, the kitchen was formally

opened with an afternoon tea and sale of food, to which stockholders only were invited. The next morning the shop opened its doors to the public, offering for sale soups, salads, sandwiches, croquettes, cold cooked meats, and bakery products. Luncheon was served from 11.30 a.m. to 2.30 p.m., and afternoon tea from 3 to 5 p.m. It had been resolved to defer the delivery of hot dinners until the kitchen and shop were running smoothly, but dinners were packed in boxes to be carried home by the purchasers, and proved popular with many who found themselves in domestic straits. The first hot dinners were delivered about two months later, and the service has continued without intermission ever since. The business as a whole finds itself now upon a paying basis.

This is the story of the beginnings of the Roland Park Community Kitchen. It has not been in existence long enough to have proved much, but some of its problems might be described for the benefit of others contemplating a like enterprise. Most of them have been mentioned by Mrs. Mary Hinman Abel in her article on "Public Kitchens," in the June number of the JOURNAL.

The success of the delivered dinners depends to a considerable degree on the kind of container used for them. It should be durable, attractive, easily cleaned, and well insulated. The latest inventions in this line are, however, such an improvement on earlier ones that if community kitchens increase in number and create more of a demand for a perfect container we have no doubt it will appear.

The expense of delivering the dinners has already been alluded to. It forms an appalling item in the overhead, and makes necessary the sale of a considerable number of dinners before the cost of material and overhead is covered. For this reason such an adjunct as the lunch room or the food shop, conducted on a cash basis, is a necessity.

The workers in the community kitchen will be besieged by comments on their efforts, both well-intentioned and otherwise. Diametrically opposite criticisms of the same article of food will be repeatedly offered; so that the most they can hope for is to please, not all of the people all of the time, but some of the people some of the time. Care must be taken to have the food offered the best of its kind; i.e., prepared from fresh, wholesome materials, and cooked by experts. Then criticism will resolve itself into practical suggestions, to be gratefully received, and individual caprices, to be tactfully ignored. Complaint will probably be made that the prices are too high, because women will insist on comparing the products of the community kitchen either with inferior

articles obtained elsewhere or with what has been cooked in their own homes. They make no allowance for time and trouble or for fuel and equipment used when the food is prepared at home. The kitchen is neither a philanthropy nor a purely commercial venture, although it must be run on business principles. Selling prices must be so set as merely to cover the cost of materials and overhead and allow a safe margin. If this has been done, the only way to meet the complaint is to urge the complainant to make a careful estimate of the elements of expense that go to make up a finished article of food.

The most serious problem is the securing of a proper manager for this complicated business. She should have all the training necessary for running a successful tea room: she should know how to buy food judiciously and serve it attractively, to plan well balanced and therefore satisfying meals, to handle tactfully both her employees and the public, and to do accurately the bookkeeping necessary to show where the business stands financially. In addition, she should combine a knowledge of the tastes of the community with a salesman's faculty for creating a desire for what she has to sell. Such a combination of virtues is not easily found in one person. As an educative experience we commend the community kitchen to the graduate in home economics, and it would be well for anyone contemplating the management of such a kitchen to serve an apprenticeship in one of those already existing.

In conclusion, I should like to say that, however great their problems have been and are, nothing in the experiences of the Roland Park Kitchen has shaken the faith of its founders in the conviction that the need for it exists, that the best methods of running such kitchens will gradually be worked out, and that some day—we shall not pretend to prophesy how soon—standard articles of cooked food will be as universally delivered from central plants as gas and water now are.

A SUGGESTION ON COÖPERATIVE MEAT MARKETING

JOHN H. KELLY, JR.

Arthur Dorr Markets, Boston

In the opinion of meat dealers of recognized ability the only way co-operative buying of meats could be successfully carried on would be through group buying, with the demand for a liberal discount, from the large retail markets, who would be glad to have the business, especially if the particular persons comprising the group would carry on a cash and carry business.

People, at least those in the eastern part of this country, demand certain cuts of meat to fit the particular purpose of the meal, i.e., we use steak cuts, roasting cuts, boiling cuts, and those for corning. The foreign people of our country are carrying on coöperative meat stores successfully because, as a rule, they ask for no special cuts, very seldom using steaks or roasts as we are accustomed to do, but boiling or stewing their meats in their own native methods.

The reason that group buying can be carried on better with large retail stores is that the buyers have a larger assortment from which to select. For example, in Boston some of the most popular steak cuts demanded are the first two cuts from the hip or rump. As there are only two first cuts and two second cuts to a steer and as the average small market would probably not have more than two steers a week, if any number of these cuts were demanded by the group buyers, the market would be unable to supply them. Some persons would be unable to get them and dissatisfaction would appear immediately, and eventually it would be disastrous to the entire group. From the large retail stores, on the other hand, group buying can be carried on with the greatest security and satisfaction for the reason that such a firm has the entire wholesale market from which to select the particular cuts that they use for retail and hotel supply trade; and, as it often takes an average of three hundred and fifty cattle per week for them to furnish these cuts, it is comparatively easy for them to supply a large number of any particular kind.

FURS

One reason that the misnaming of furs is so common and that no definite legislation exists in this country against it lies in the fact that up to this time there has been no very sure way to identify with certainty the different commercial fur hairs. Dr. Leon Hausman of Cornell University has outlined in *The Scientific Monthly*¹ a method of identification with the microscope. With such knowledge available women should demand the protection which correct labeling would give. Dr. Hausman says:

It is possible to remodel and rename furs; that is, so to clip, dye, and pull them, that their original appearance is altered to such an extent that they may be sold under names not their own. Furs so remodeled may be sold under the names of furs much superior in wearing quality or in warmth.

Thus the pelts of animals from warmer zones, such as the woodchuck (marmot), opossum, Australian opossum, raccoon, weasel, Tartar pony, Manchurian dog, and certain monkeys, are worked up by fur dressers into articles but little resembling their originals and sold under other names, usually under the names of animals of northern latitudes. Such furs are inferior to those from colder climates in suppleness and durability of leather, denseness and silkiness of under- or fur-hair, fullness of over- or protective hair, and, because dyed, are brittle and less durable in general. One of the most durable of all furs is that of the sea otter (*Lutra lutris*). Considering this to be represented by 100, the relative durability of some common furs, when used with the fur outside (not for linings), is as follows:²

Species	Durability (Otter=100)	Species	Durability (Otter=100)
Beaver.....	90	Muskrat.....	45
Bear, black or brown.....	94	Nutria (Coypu rat), plucked.....	25
Chinchilla.....	15	Otter, sea.....	100
Ermine.....	25	Otter, inland.....	100
Fox, natural.....	40	Opossum.....	37
Fox, dyed.....	20-25	Rabbit.....	05
Goat.....	15	Raccoon, natural.....	65
Hare.....	05	Raccoon, dyed.....	50
Kolinsky.....	25	Sable.....	60
Leopard.....	75	Seal, hair.....	80
Lynx.....	25	Seal, fur.....	80
Marten (skunk).....	70	Squirrel, gray.....	20-25
Mink, natural.....	70	Wolf.....	50
Mink, dyed.....	35	Wolverene.....	100
Mole.....	07		

The following list¹ gives some of the best known furs and their usual misnomers.

<i>Species</i>	<i>Altered and sold as</i>
American sable.....	Russian sable
Fitch, dyed.....	Sable
Goat, dyed.....	Bear, of various kinds
Hare, dyed.....	Sable or fox
Kid.....	Lamb
Woodchuck (marmot), dyed.....	Mink, sable, skunk
Mink, dyed.....	Sable
Muskrat (musquash), dyed.....	Mink, sable
Muskrat (musquash), pulled and dyed.....	Seal, electric seal, Hudson Bay seal, Red River seal
Nutria (Coypu rat), pulled and dyed.....	Seal, electric seal, Hudson Bay seal, Red River seal
Nutria (Coypu rat), pulled, natural.....	Beaver, otter
Opossum, sheared and dyed.....	Beaver
Otter, pulled and dyed.....	Seal of various kinds
Rabbit, dyed.....	Sable
Rabbit, sheared and dyed.....	Seal, electric seal, Hudson Bay seal, Red River seal, musquash
Rabbit, white.....	Ermine
Rabbit, white, dyed.....	Chinchilla
Kangaroo (wallaby), various species, dyed....	Skunk (marten)
Hare, white.....	Fox
Goat, dyed.....	Leopard

¹ *The Scientific Monthly*, January 1920.

² Modified, from Peterson, "The Fur Trade and Fur Bearing Animals," Buffalo, 1914.

³ Modified from Jones, "Fur Farming in Canada." Canada Commission of Conservation, Ottawa, 1914.

EDITORIAL

Concerning the International Conference.

OFFICE INTERNATIONAL DE L'ENSEIGNEMENT MÉNAGER

Fribourg, le 4 novembre, 1920.

Editor of the Journal of Home Economics,

Chère Madame,

En possession du No. d'octobre 1920 de votre remarquable publication, nous nous empressons de venir vous remercier de l'accueil réservé et de la place accordée à notre lettre du 15 juin dernier. Merci également des décisions qui ont été prises ainsi que de l'aimable commentaire qui y a été joint.

Nous saisissons cette occasion pour vous demander instamment de faire tous vos efforts en vue de nous valoir de la part de vos compatriotes tous les subsides que notre cause mérite, subsides qui est si difficile de recueillir dans un Europe que la guerre a si lamentablement éprouvée.

Nous sommes en pleins travaux préparatoires de notre III^{me} Congrès international et nous nous ferons un plaisir en même temps qu' un devoir de vous communiquer les résultats de ces travaux préparatoires dès leur définitive mise au point, qui ne saurait tarder.

En vous remerciant encore veuillez agréer, chère Madame, les très vives assurances de nos sentiments confraternels.

Le Directeur,

LEON GENOUD.

This letter seems so much more effective in its appeal than if it were rendered into English that the editor has forborne to use her skill in translating it.

The Third International Congress of Home Economics Education will be held at Strasbourg, July 28-31, inclusive.

What can we do to help?

The Fribourg office of course wants as much official support as possible. It has appealed to the Department of Agriculture for a subsidy, but the Secretary has been obliged to reply that, while the Department is interested in the subject of the Conference, it is not authorized to use funds for such a purpose. Mr. Genoud has been informed that this is always the attitude of our Government and that the policy in this country is to leave such matters to private individuals.

Is not this the special concern of the members of the American Home Economics Association? Possibly the Association can increase its contribution. If not, there should be at least a hundred individual memberships subscribed for. It is understood that Edna White, the former president of the Association, will be able to represent us at the meeting. Any others who expect to be in Europe next year should plan to attend the Conference.

Coöperative Enterprises. There is no economic problem that is of more immediate interest to the average consumer of today than that involved in the numerous coöperative schemes that are proposed, many of them tried, and some brought to a successful issue. Such experiments should be recorded fully, whether they be in coöperative buying, coöperative selling, community kitchen, or other community enterprises. Difficulties and discouragements should receive at least as much recognition as successes. The JOURNAL is glad to include such accounts as are given in this number, both for the encouragement and the warning of those embarking upon similar enterprises. We are glad also to note an experiment of a different type, really one form of coöperation, that is fostered by the University of Maryland Extension Service.

Under present conditions in the wool market, growers are being offered prices ranging from 15 to 25 cents per pound for wool, with the result that thousands of pounds of raw product have been stored in warehouses and on farms since the slump in wool prices began.

To meet this emergency and to move the wool crop of the state, arrangements have been made with a North Carolina woolen mill to take the raw wool from the farmer and convert it into either blankets or motor robes.

The farmer will act as salesman for the finished product, selling it at actual cost and deriving his benefit from the plan by charging a fair price of 55 cents a pound for his wool. For every blanket that he sells, he will forward to the mill 10 pounds of wool. To have this wool cleaned, scoured, carded, dyed, spun, and woven into blankets will cost him \$5.00. To this will be added the carrying charges, amounting to 75 cents, and \$5.50 representing the cost of the 10 pounds of wool at 55 cents a pound. The completed blanket will be sold for \$11.25 and the motor robes for \$8.75. Both products will be all-wool with the exception of a small quantity of cotton which is used in the warp to add strength.

We shall watch with interest the working out of this scheme.

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NEWS FROM THE FIELD

The Chair of Home Economics in the Constantinople College for Girls. Contributions to the Constantinople Fund are still coming in from home economics departments in normal schools, colleges, and universities. With the amounts that have been pledged and sent in during the last few weeks, the fund has not only reached but exceeded \$6000, and the Trustees of Constantinople College have appointed a director for the department.

From those recommended by the Committee of the American Home Economics Association, Mrs. Alice P. Norton has been selected as being the one who best fitted into Constantinople College conditions: first, because of her classical education; second, her long practical experience as a mother; third, her subsequent training in home economics work; and, fourth, her practical experience in educational work. The Trustees of the College felt that she could bring to the Constantinople position an understanding of their classical standards and thereby develop a sympathy between their older type of classical education and the new science and applied science that they are just beginning to develop. Also, the fact that she has been a wife and mother would give her added prestige in meeting the situation in Turkey where the unmarried woman is always at a disadvantage.

Mrs. Norton has been given leave of absence from the editorship of the JOURNAL. She is leaving earlier than she had planned, taking a January boat so that she may co-operate in a study that is to be made to remedy the unsanitary and crowded condition of Constantinople due to the influx of refugees from Russia.

ABBY L. MARLATT.

Conference of Extension Specialists in Clothing. The first country-wide conference of subject-matter specialists ever authorized by the Extension Committee of the Association of Land Grant Colleges was the conference of clothing extension specialists held at Iowa State College, November 8 to 13, 1920. Twenty-six of the thirty-three northern and western states were represented by at least one worker. Those attending included nineteen clothing extension specialists; twelve state home demonstration leaders; three assistant state leaders; two assistant state club leaders; state-wide workers in foods, in household management, and in general home economics; the head of the work in clothing and textiles in a neighboring state university; and four representatives of the States Relations Service.

The conference was called to make possible an exchange of experience as to field problems and methods and a study of the extension organization with a view to learning to work through it to the best advantage. The program included such topics as the use of home demonstrators, training of local leaders, records and reports, farm bureau organization, the contribution of the specialist to club work, clothing work at county and state fairs, coöperative buying, the place of the survey in the clothing project, and training for the newly appointed specialist.

Demonstrations included the hygiene factor in the clothing project (showing the importance to health of properly fitting corsets); standardizing clothing construction operations; selection and arrangement of pictures and furniture; and selection of clothing for the girl of high school age, this last in the form of a playlet.

The following committees were appointed: General Advisory Committee, Committee on Contracts, Committee on Records, Committee on Boys' and Girls' Club Work.

The Agricultural Extension Department and the School of Home Economics of Iowa State College acted as hosts of the conference, and visiting delegates will long remember their gracious welcome and their unflagging hospitality.

Reaching the Public at a State Fair. The Vocational and State Supervisor of Home Economics in Louisiana, Cleora C. Helbing, and her assistant, Clyde Mobley, in coöperation with the State Department of Education and Home Economics Departments of State Institutions, recently conducted a demonstration at the Louisiana State Fair for the purpose of promoting and introducing hot school lunches into the schools throughout the state.

A well-screened and sanitary kitchen was fully equipped through the courtesy of local firms and agencies, and the various home economics departments carried on practical demonstrations in preparing and serving, at cost, hot lunches such as might be served in any high school. In addition to work done by college and normal students, one of the state high schools conducted a creditable demonstration, exemplifying the type of training that high school girls were receiving.

Appropriate posters, prepared by the State Department of Home Economics, were supplemented by posters, food charts, and menus from the various home economics departments.

Lunch was served each day to many visitors attending the Fair, while the kitchen was open throughout the day.

These demonstrations did more to arouse the people of Louisiana to see the need of wholesome food for children than anything else presented in the state, while the work in home economics education now in progress was given a great impetus.

Conference and Dedication of Women's Dormitory at the Massachusetts Agricultural College. On October 7 and

8 there was held at the Massachusetts Agricultural College in Amherst, a Conference on Women in Agriculture and Country Life.

The conference was of interest and value to any woman who is interested in agriculture, whether she intends to take an agricultural position, farm on a large scale, or use but a small piece of land for profit or pleasure; and to any country dweller, man or woman, who likes country life, and wants to know how to make it most worth the living. Women, who are actively engaged in some phase of agriculture, and other speakers of national repute gave practical help as well as inspiration. Mrs. Francis King, President of the National Farm and Garden Association, spoke of the agricultural opportunities which are open to women. Mr. C. J. Galpin of Washington, D. C., discussed the Transition from Family to Community Regime in Rural Life.

Nettie C. Burleigh, Wonheim Farm, Waterville, Me., and Margaretta V. Landmann, Forsgate Farms, Prospect Plains, N. J., told of their personal experiences in agriculture. Miss Burleigh does her own farm work, specializing in poultry, pigs, and dairy cattle. Miss Landmann has been engaged in several kinds of agricultural work, and is now manager of an experimental seed farm. Edna Cutter of Dracut, Mass., who runs a dairy farm and is also agricultural adviser for a good many private estates, conducted a round table discussion.

The dedication exercises of the new dormitory for women took place at the same time, with greetings from the representatives of all New England colleges which admit women. The dedicatory address was given by Sarah Louise Arnold, Dean Emeritus, Simmons College, Boston. The President of the Board of Trustees of the Massachusetts Agricultural College presented the keys of the new building to President Butterfield who acknowledged them and passed them over to Miss Skinner in charge of home economics and adviser of women. The name of the new dormitory, offered by several of those who entered the con-

test to suggest it, was announced by Miss Skinner as Abigail Adams.

The dormitory, accommodating a hundred women, is very attractive, both without and within. On the north and west there are views of the Green Mountain foothills west of the Connecticut River, while on the west and south of the building a wooded hillside makes a beautiful outlook. The living rooms are to be furnished attractively by the Massachusetts women of the New England Branch of the Farm and Garden Association. The present girl students were in attendance to act as hostesses and to show the guests about the building and campus.

A Household Arts Exhibit, given at the State Normal School, Cheney, Washington, Blanche W. Stevens, Director, included garments and problems made by the fourth, fifth, sixth, and eighth grades during the quarter.

A table was covered with exquisite art needle work, and a dainty layette. A tailored suit, made by a member of the housekeepers' class in sewing, was shown, proving that women can become expert in tailoring. Hats costing from \$2.38 and up were shown, though many of them could not have been purchased for \$18 to \$20 in Spokane shops.

The fabric judging contest was of especial interest to the many people who visited the household arts department.

Washington Home Economics Association. The annual meeting of the Washington Home Economics Association was held in Yakima, October 28, during the meeting of the Washington Educational Association. The following program was given: What Home Economics Can Do to Help the Under-nourished Child, Martha Koehne, formerly of Johns Hopkins University; Benefits Derived from Affiliation with the Federation of Women's Clubs, Mrs. Gawler of Yakima; The Field for Educational Directors in Retail Stores, Isabel Bacon of the Federal Board for Vocational Education.

Edna Waples, Supervisor of Home Economics, Bellingham, displayed a garment made of sugar sacks to show how the Home

Economics Department in Bellingham had cooperated with the national thrift movement.

The following officers were elected for the ensuing year: President, Florence Harrison, Dean of Home Economics, Washington State Agricultural College; Secretary and Treasurer, Mildred French, Supervisor of Home Economics, Spokane, Washington.

Iowa Home Economics Association. At the state meeting of the Iowa Home Economics Association in Des Moines, November 4 and 5, 1920, interesting discussions of teaching problems followed addresses by Mabel Trilling, University of Chicago, on Standardizing Home Economics Courses; Neale Knowles, Extension Department, Iowa State College; Lola Yerkes, Iowa State University; Professor Baldwin, Head of Department of Child Welfare, Iowa State University, and others.

University of Chicago. Inez Boyce, a graduate of the University of Wisconsin and for the past three years Director of the Department of Home Economics of the Illinois State Normal School, DeKalb, Illinois, has been appointed instructor in home economics. Miss Boyce has charge of the method courses and the direction of the practice teaching in food and household management.

Jane Hyde, who has charge of the home economics courses in the University Elementary and in the High School, succeeds Rosa Biery, now Mrs. Lawrence Andrews of Pittsburgh. Miss Hyde is a graduate of Columbia University and during the past two years has been teaching in the Deerfield-Shields High School of Lake Bluff, Illinois.

Dr. Chi Che Wang, until recently an instructor in Home Economics (food chemistry and nutrition), is now head chemist at Michael Reese Hospital, Chicago. Dr. Wang's work consists of the supervision or performance of the analyses necessary in the treatment of diabetic, nephritis, and cancer cases, thyroid diseases, digestive disturbances, and others. She will also direct research in this field.

Fellowships for the year 1920-21 have

been awarded as follows: Marie Dye who has her bachelor's and master's degrees from the University of Chicago is working toward her doctorate in nutrition. Adah Hess, B.S. Teachers College, Columbia University, is working toward her master's degree in home economics education.

NOTES

Anna R. Van Meter has been appointed Assistant Director, Bureau of Nutrition Service of the American Red Cross and took up her work in Washington early in November. Miss Van Meter was formerly Professor of Home Economics at Ohio State University and was acting head of the department last semester. She has lately been engaged in a piece of work in Detroit under the joint auspices of the Merrill-Palmer School, of which Edna N. White is director, and the Detroit Chapter of the Red Cross.

Faith R. Lanman, formerly professor in charge of Home Economics Extension, Ohio State University, has been appointed as head of the Department of Home Economics in the same university.

Geraldine Hadley has been appointed head of the home economics department at Bradley Polytechnic Institute to succeed Helen M. Day who has gone to California.

Mollie Noble has returned to New Zealand after spending the summer observing and studying home economics in the United States, especially at the University of Washington, Seattle. Miss Noble was sent to this country by the Auckland Education Board.

A letter from Miss M. E. Roberts, in charge of Women's Handicraft Branch,

Technical Education Division of the Australian Department of Education, Sydney, Australia, shows that home economics is making very definite progress in that country. Miss Roberts made particular inquiry regarding available educational text books in home economics, and the International Committee of the American Home Economics Association was of service in sending information to her.

Louise G. Turner, formerly State Supervisor of Home Economics in Tennessee, is now Associate Professor of Vocational Teacher Training, at Pennsylvania State College.

Treva E. Kauffman has resigned from her position as Assistant Professor of Home Economics, Ohio State University, and State Supervisor of Vocational Home Economics, State Board of Education, to accept the position of State Supervisor of Home Economics with the University of the State of New York at Albany. Miss Kauffman was connected with Ohio State University for seven years. She developed the school lunch work in the small schools of Ohio, organized the girls' club work, and later organized the teachers' training and field work in home economics under the Smith Hughes Law.

An intensive course in administration of vocational education will be given at Teachers College, Columbia University, January 26 to February 23, 1921.

The Vocational Education Association of the Middle West will hold its next annual convention in Minneapolis, Minnesota, February 10 to 12, 1921.

The Meeting of the American Home Economics Association, in connection with the Division of Superintendence, N. E. A., will be held in Atlantic City, February 28, and March 1, following a meeting of the National Society for Vocational Education, February 24 to 26. The program is based on the problems of the home economics teacher in the elementary and high schools. Further details will be printed in the February JOURNAL.

The meetings will be held in the Hotel Dennis. The Convention Bureau of Atlantic City will send, on application, a pamphlet giving full information concerning hotel rates.

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THE CONTRIBUTION OF EUROPEAN EXPERIENCE ON LOW DIETS TO OUR TEACHING OF DIETETICS¹

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It may even yet be too soon to attempt to draw together the teaching of the recent vast experiment in Europe upon the nutrition of man. War diet in practically every country in Europe whether belligerent or neutral, meant an insufficient and in most cases, a one-sided diet. When such a diet is followed faithfully perforce by several million subjects for four years or more, some general consistent results should be observable, and should be available in the scientific literature. General agreement by observers may be said to have been reached on a number of points, but striking discrepancies are evident in the observations and conclusions of competent men upon other equally important details. A brief résumé of the recorded data may therefore prove of some value.

Kinds of evidence. There are two varieties of data upon the under-nutrition of the war, as upon other biological questions, the statistical or clinical and the experimental types. The first of these is presented in the reports of physicians, orphan asylums, and other institutions, hospitals, prison and army camps, state food or health bureaus. The second is the result of the activity of research laboratories in Europe and America. Both kinds of evidence must be considered in any review of this sort, although the statistical type far exceeds the experimental in quantity and variety.

¹ Presented at the Thirteenth Annual Meeting of the American Home Economics Association, Colorado Springs, June, 1920.

Some of the statements published early in the course of the war are somewhat at variance with those recorded later, and also those which have appeared since the close of the war. Military and political policy may account for these differences, and economic need for the great increase in number and the pathos of the reports emanating from central Europe after the armistice was signed.

General underfeeding, that is, deficiency in quantity of food, must here be considered separately from specific qualitative deficiencies in the war diet, even though in fact both these factors of inadequacy were usually present at the same time. It is indeed difficult to judge whether the cause of such a symptom, for example, as the widely occurring inanition edema should be classified under the one or the other or both of these deficiency factors.

Inadequate energy content of war diet. The largest number of observations of the caloric value of the war diet was made by German investigations. N. Zuntz and A. Loewy of Berlin, and later Loewy with other collaborators have recorded exact data on this point for each year of the war beginning in 1916. Pfaundler made similar observations in Munich, and Durig in Vienna.

The content of the war ration. Pfaundler (1) gave the civilian ration, in Munich in October, 1917, as follows: for adults, protein 56.7 gms., fat 30.3 gms., carbohydrate 308 gms., yielding a total of 1760 calories, and made up of bread, meat, milk, potatoes, sugar, cheese, eggs, butter, and grits. Children in the second year were given the adult ration plus 1000 cc. of milk, in the third and fourth years the adult rations plus 500 cc. of milk, and in the fifth and sixth years the adult ration plus 250 cc. of milk. After the sixth year children were given the adult ration alone. Pfaundler draws the following comparison of these allowances with what he believes to be the true requirement:

	PROPER RATION (PFAUNDLER)	MUNICH RATION (OCT. 1917)
	<i>calories per day</i>	<i>calories per day</i>
1 to 3 months.....	—	943
4 to 12 months.....	—	1133
2nd year.....	1550	2410
3rd and 4th years.....	1550	2082
5th and 6th years.....	2070	1920
6 to 16 years	2070	1760

This ration was noted as unaltered in January, 1918.

A little earlier Pfaundler (2) had stated that some advantage seemed to accrue to children between the ages of 2 and 6 years, from this unusually generous diet, in warding off hereditary taint, spasmophilia and similar diatheses.

Jansen (3), from F. Müller's clinic in Munich, gave the ration in effect in the spring of 1917 as yielding 1600 calories and about 60 gms. of protein.

Loewy (4) stated that the daily ration in Berlin in April, 1916, yielded an average of 2320 calories, and 68.3 gms. of protein; in July, 1916, 2230 calories and 66.7 gms. of protein; and in April, 1917, 1985 calories and 59.9 gms. of protein. Loewy and Brahm (5) in 1917, made a study of the food eaten daily by nine members of the Berlin garrison, doing light work, and found it to have a fuel value of only 1400 to 1800 calories, and 25 to 50 gms. of protein. They state that toward the end of the war the poorer people in Berlin had less than 2000 calories and 50 gms. of protein. Seventy per cent or more of the calories were derived from carbohydrate. The chief complaint made by Rubner (6) concerning the food situation in Germany, following the armistice, was with reference to the low protein content of the ration. He says that bread and potato do not restore depleted muscle, and for this is roundly scored by Hindhede (7) who considered these foods protein sources of high value.

A number of statements are available as to the English civilian ration. The compulsory ration early in 1918, according to the London letter to the Journal of the American Medical Association (8), contained 1½ pounds of meat, 4 oz. of butter or margarine, 8 oz. of sugar per week. Other foods such as bread and fish were not rationed, but milk was obtainable only for children, nursing mothers, and the sick. Cream was not allowed for any one. According to Waller (9) this restricted war ration in 1918 yielded 1977 calories, sufficient energy content for his own needs, a sedentary worker whose weight had declined from 190 to 175 lbs. during the third war year.

The English ration was apportioned per "head" of population, that is, 0.75 of the man value of the calculated need. The "man" value of diets was revised by the Inter Allied Food Commission to a more generous proportion than that devised by Atwater. Greenwood and Thompson (10) compared these standards as follows:

ATWATER'S COEFFICIENTS		NEW CO-EFFICIENT OF INTERALLIED FOOD COMMISSION	
Ages in years	Man value	Ages in years	Man value
0-5.....	0.4	0-5.....	0.4
6-9.....	0.5	6-9.....	0.7
10-13.....	0.6	11 and over { Males.....	1.0
14-15 { Males.....	0.8		0.83
{ Females.....	0.7		
16 and over { Males.....	1.0		
{ Females.....	0.8		
All children average.....	0.51	All children, combined ages averaged for the population.....	0.68

This more generous food allowance for children is in accord with the later work of Dubois and others (11) and of Gephart (12) on the extraordinarily high energy output of young boys, and with the summaries of food requirements of children recently published by Talbot (13) and by Lusk (14).

The Inter Allied Scientific Food Commission in 1918 adopted the following averages as representing the energy output of adults:

	GROSS	NET
Sedentary work.....	2750	2500
Average work.....	3300	3000
Heavy work.....	5000	3900

The average diet of 3000 calories was expected to contain a minimum of 52 to 70 gms. of protein, 75 gms. of fat, and 500 gms. of carbohydrate.

The Belgian ration in 1917, according to Herbert C. Hoover (15) contained 60 gms. of protein, 40 gms. of fat, and 300 gms. of carbohydrate with a total of 1800 calories. Upon this amount of food large numbers of people lived and worked apparently with little ill effect. He reports that the public health was maintained and that an actual decrease in mortality resulted.

Loss of body weight. The most obvious result of the quantitatively inadequate diet was the rapid and continual loss of body weight. As early as 1916, Zuntz and Loewy (16) reported losses of their own body weight of 10 to 12 per cent. Stationary weight was reached at some such point because of resulting adjustment of metabolism at the new level

to the lowered energy intake. Durig (17) reports losses of as much as 80 lbs. in adults in Vienna, and the majority of the population of that city were said by December, 1919, to have lost fully 15 per cent of body weight (18).

Loss of weight and failure to grow normally was even more apparent among children. In the third war-year, G. Fuhge (19) made a study of the food intake and growth of children 6 to 14 years old in an orphanage in Berlin, and found a considerably retarded growth, serious under weight, and constant nitrogen loss in nearly all cases. Young babies among the poor of Austria (18) even now are reported as 5 to 20 per cent below normal in weight. Pfaundler (20) has recently noted a curious leveling of weight among the children of various social strata in Munich. Six year old children, in the period between 1914 and 1919, showed an average decrease in height of 3 cm. and in weight of 1 kg. below the normal. Since this decrease was greater among children of the professional than the poorer families, the effect of the war seems to tend toward a leveling of the classes from the somatic as well as political and economic viewpoints.

From Prague, Pollak (21) reported the average daily gain in weight of a certain group of children from 1913 to 1917 as decreasing from 20.6 to 10.8 gms. At the same time the mortality in this group increased from 4 to 15 per cent.

There is nothing surprising about these statements concerning loss of body weight following underfeeding, and they are referred to here merely because of the continual references to the fact in the medical literature. The persistent opinion, held by many persons whom one would expect to be better informed, that food intake and body weight are not necessarily closely related can best be answered by reference to this gigantic Banting experiment in Europe. A short time ago a visiting professor from Poland laughed incredulously in my hearing at a statement that body weight might be reduced according to a pre-arranged rate by regulation of food ingestion. The next moment, apparently without realization of the inconsistency, this same professor began a moving story of the emaciation of his compatriots resulting from war underfeeding.

(To be concluded)

THE HIGH SCHOOL CAFETERIA AS A HOME ECONOMICS PROJECT

BERNICE FRANCES DODGE

The University of Wisconsin

A superintendent, in telling proudly of the work of his school, recently said that the cooking classes in his high school served luncheon every day to two hundred children, and that they served, not just one hot dish, but a complete meal, including sandwiches and ice cream. He was somewhat surprised to be told that home economics people did not consider making sandwiches and dishing ice cream every day to be of educative value, and that in conducting so large an enterprise there was grave danger of exploiting the children instead of educating them. If the size of the undertaking is not a criterion of its worth, just where do we find its value? Can a high school cafeteria be so conducted as to have a rightful place in our course of study?

In every high school there are some boys and girls who can not go home for the noon hour, and in many of the smaller schools no provision is made for these children. They bring lunch boxes from home, or buy cookies and sweet chocolate at the corner grocery, and eat a cold luncheon every day. In such a situation, the cooking teacher recognizes a responsibility which belongs specifically to her field of service, and an opportunity to make the influence of her department felt throughout the whole school, in better health and better food habits. What these children eat in school at noon, and where and how they eat it, are questions which intimately concern the food department of any school.

We found this situation in Wisconsin University High School a year ago. The plan which we have tried there may be of interest to other teachers who are finding similar conditions, and may serve to show how the work can be organized as a project with distinct educational value.

It was not difficult to show the girls in one of the cooking classes that this would be an interesting piece of work for the winter months, and an opportunity to be of real service to the school. From their very simple study of nutrition, they could see that a hot dish, to supplement the food brought from home, would be highly desirable to maintain the best possible physical condition in these children, and that an attractive, comfortable place in which to eat would be conducive both to good digestion and good table manners. To organize the work intelligently and to carry it out efficiently required a preliminary study of the various

lines of work involved. Since this was an elementary class, we needed first of all to learn to cook some suitable dishes, so we had a series of lessons on cream soups, cocoa, egg dishes, baked hash, bread pudding, and other dishes which we believed would be good for the children and also popular with them. In connection with these lessons, the girls worked out the large-quantity recipes, with costs, to file away ready for use later. They also studied what foods should be brought from home to eat with the hot dish, to make well rounded meals, and planned posters for the main bulletin board for the purpose of educating their prospective customers.

Working out costs brought up the question of finances. We decided not to try to make a profit, since this was not intended as a money making enterprise, but rather as a bit of social service, and we wanted to keep the food within reach of the ones who would need it most. An average of the costs showed that a flat rate of five cents per serving would cover the cost of the food. By making a little study of marketing, we found that careful buying would save money. We also had to learn how to keep accounts, since any one who handles other people's money must necessarily know where every cent goes. We found that by multiplying five cents by the average number of servings per week, and allowing ourselves that sum, we could budget the money in such a way as to be sure not to run in debt.

Then we came to the important consideration of organizing the work. We decided that a committee of three was the best size to handle it; so the class was divided into groups of three, and each group elected its chairman. We discussed the duties of the chairman and the committee members, what real leadership involves, and what sincere coöperation means. Then committee number one had a meeting to plan the dishes for the first week, the posters for the main bulletin board, the market order, and their individual duties. They started the account book, which was to be balanced and signed at the end of the week, and handed over to the next committee; and they arranged the large equipment where it would be conveniently near the stove, sink, and table which were set apart for their special use. They decided where to have the line of customers pass, and how they wished these customers to rinse and stack their dirty dishes, in order to make dish-washing as easy as possible for the committee. Then they went off to do their marketing and put up their posters.

When the opening day of the "one-hot-dish-cafeteria" came, the girls of committee number one spent their class hour preparing the food, wondering if it could possibly be right to use all those quarts of milk for the soup, and put in salt by the tablespoonful; the rest of the class and the teacher spent that class period in ordinary laboratory work. During the following weeks, while the cafeteria was running, the class work consisted of new cafeteria dishes, and a series of baking lessons. Many times we were glad to use large recipes for things like cookies and cakes, and then turn the products over to the committee. The boys and girls were always delighted to find these surprises on sale and bought up the supply promptly.

The lack of a dining-room seemed a serious obstacle at first, but we began by using the sewing-room and an adjacent recitation room. This made our need of a dining-room so evident that the school gave us a room for this purpose, and had the walls and wood work freshly painted. We bought six kitchen tables and twenty-four chairs, at a cost of fifteen dollars and fifty cents for each set of one table and four chairs, and the girls painted and enamelled them all, designing their own color scheme of gray with green and black trimmings. This room and the sewing room together take care of the children very comfortably.

The cafeteria work proved to be a definite and interesting project which enlisted the enthusiastic efforts of the girls. The many problems involved were of real educative value. The girls learned something of marketing and large quantity cooking; they found a real need for budgets and accounts, so that the application of this to house management was easy and reasonable; they learned a little of how dietetics should be used to plan meals and help maintain health; the aesthetic side of serving was brought out through discussions about how to make the food attractive and appetizing; and we all learned so much about re-finishing old furniture, and so enjoyed wielding a paint brush that several of the girls went home and painted the kitchen chairs, or the porch furniture, or an old set of bedroom furniture.

The most important educative value, however, was its effect upon the development of the girls themselves. The situation was always a social one; the committee had to work together, first of all. Some chairmen showed real executive ability, and considerable initiative combined with tact in handling their committee members; many girls developed an assurance and managerial ability which they had never suspected they possessed; some learned for the first time the value of

team-work; occasionally someone shirked, but the pressure brought to bear on the lazy person by the rest of the class was usually enough to bring about at least a temporary reformation. In one case a girl became so ashamed of herself for slipping out of her share of the work that she volunteered for extra work to make up for it.

In the second place, the committee had to take the responsibility for the food served, and learn to accept cheerfully both the compliments of their customers and the adverse criticisms, which children are likely to make in rather a merciless fashion. They also had to train these customers in the clean-up program outlined for them, or accept the consequences, which meant cleaning up after them.

There are many occasions during work of this kind when decisions must be made, often very quickly, and when all a girl's ingenuity is called into play to meet some emergency. The girl must use her own best judgment and must adapt herself quickly to the situation, without waiting to ask some one else what to do. Her self-reliance and self-confidence grow rapidly, and she is eager to have her turn at cafeteria work come again.

The position of the teacher, after the preliminary period of study is over and the cafeteria is in full swing, is that of advisor and interested observer. She is in the room while the committee prepares the food but is so busy conducting the regular class work that the girls of the committee feel distinctly thrown on their own resources. She will wish to be in the building during the noon hour, unless there is some other teacher within call in case of accident, but she will not necessarily be in the kitchen. She will be keenly interested to see how the girls handle it all, but will leave the responsibility entirely in their hands.

It is evident that this method of organization is adapted to the smaller schools. If the cafeteria grows to such proportions that the class cannot handle all the work, hired help should be secured for the washing of dishes and paring of potatoes, reserving for the class the managerial side of the work. If the enterprise becomes too large, either through an effort to serve a whole meal instead of one dish, or because of the size of the school, it becomes an exploitation of the girls rather than a project of educational value. In that case, the lunch room should be put on a separate basis, with its own manager. If friendly relations can be maintained so that classes can contribute products to the lunch room from time to time, and so that the girls can be given some experience in lunch room management, that would be highly desirable.

To have a rightful place in our home economics course of study, the cafeteria work should measure up to these three standards: it should contribute something educative every day to each girl; the members of the class, not the teacher, should receive all the beneficial experience which comes from the executive side of the work; and it should be so conducted as to have an influence on the food habits of the school as a whole.

GASTRIC RESPONSE TO FOODS

ABSTRACTED BY MINNA DENTON

(Concluded)

VII

The seventh paper deals with the response of the stomach to vegetables, raw, and also cooked in different ways. One hundred and twenty-four experiments were made on 25 normal men. Presumably 100 grams of vegetables were fed in most cases, though this detail is not made clear. However, mention is made of the fact that only 50 grams were fed in the case of potato chips, and of radishes; 50 to 100 grams in the case of mushrooms. The average evacuation time for all subjects of the rapid-emptying type was 2 hours and for the slow-emptying type $2\frac{1}{2}$ hours. The averages of the high points of the total acid curves were 70 and 77, respectively.

The response of the stomach to potatoes prepared in the following different ways was determined: whole boiled, creamed, mashed (with and without milk and butter), baked (with and without butter), potato salad, French, German, and plain fried potatoes, and potato chips. All of these left the stomach in moderate time or $1\frac{1}{2}$ to $2\frac{1}{2}$ hours for rapid type individuals and 2 to $3\frac{1}{2}$ hours for the slow type. Baked potatoes with butter required more than the average time but plain baked potatoes about the same time as boiled potatoes. The addition of milk and butter to mashed potatoes had little effect nor did creamed potatoes or potato salad differ much from plain boiled potatoes as regards gastric response. Fried potatoes left the stomach as rapidly as potatoes prepared in other ways. French fried potatoes required a few minutes longer than German or plain fried potatoes. Potato chips (only 50 gms. fed instead of 100 gms.) were handled very rapidly by the stomach, considering their high solid and fat content.

Sweet potatoes whether boiled, baked, or fried remained longer in the stomach than white potatoes cooked in the same ways. Dasheens, whether boiled, baked, or fried required a longer period of gastric digestion than white potatoes but no longer than sweet potatoes. Cassava roots were fed boiled and baked and were found to require a little longer than white potatoes similarly prepared. Boiled oyster plant required about the same period of gastric digestion as white potatoes.

Boiled red beets left the stomach rapidly, i.e., in from 1 to 2 hours. After being pickled in vinegar they left still more rapidly, the vinegar evidently hastening the evacuation. Raw carrots also left the stomach rapidly (in from $1\frac{1}{2}$ to 2 hours). Boiled carrots took distinctly longer ($2\frac{1}{4}$ to $2\frac{1}{2}$ hours). Boiled parsnips required a longer time than beets or carrots. Boiled turnips left the stomach in $2\frac{1}{2}$ hours. Radishes in amounts of 50 grams left the stomach very rapidly (in from $1\frac{1}{4}$ to $1\frac{1}{2}$ hours).

Baked beans, as might be expected from their high protein content, remained somewhat longer in the stomach than most other kinds of vegetables and developed higher combined acidities. String beans, on the other hand, left the stomach rapidly, resembling more closely the green vegetables in stimulatory power upon the stomach. Boiled peas required $1\frac{3}{4}$ hours in each of two cases or less time than baked beans. Boiled lentils appeared to require a little longer than peas, while raw endive resembled peas as far as evacuation times were concerned.

Asparagus left the stomach rapidly. Boiled cauliflower required only a few minutes longer in one case, but in a subject of the slow type showed delayed evacuation. Cabbage whether raw or cooked left the stomach rapidly even in subjects of the slow-emptying type. Boiled cabbage was not handled more readily than the raw. Cold slaw and sauerkraut required distinctly longer to leave the stomach than plain cabbage. Lettuce in spite of its bulky character was found to be one of the most easily evacuated of foods, the response to this food resembling that to cabbage. The addition of sugar and vinegar or oil and vinegar delayed evacuation. Celery in the raw state is evacuated more slowly than cabbage or lettuce, but creamed celery caused less difficulty. Spinach remained in the stomach distinctly longer than most vegetables.

Onions stewed and fried showed slower evacuation than other vegetables low in protein, but not longer than high protein vegetables, when fed in moderate amounts. Cucumbers did not impose any special burden on the stomach, whether salted or unsalted. The unsalted required but a few minutes longer than the salted cucumbers. Boiled squash required $2\frac{1}{4}$ to $2\frac{1}{2}$ hours or about the same time as boiled carrots or sugar corn. Raw tomatoes left the stomach very rapidly in all cases. Boiled tomatoes required a longer

time. Mushrooms require only a moderate period of gastric digestion—2½ hours with a subject of the rapid type.

Stewed corn left the stomach almost as rapidly as raw carrots or tomatoes and boiled hominy required but little longer. Boiled unpolished rice and boiled barley were readily handled by the stomach and usually passed into the intestine sooner than boiled polished rice. Raw agar-agar (previously soaked in water) left the stomach in 1½ hours as compared with 2½ hours for boiled unpolished rice. Hemicelluloses appear therefore to leave the stomach very rapidly and show a certain analogy with vegetables such as cabbage and lettuce.

In general raw vegetables low in protein, as carrots, celery, tomatoes, cabbage, lettuce, and cucumbers, leave the stomach rapidly, develop moderately high free acidities but little combined acidity and leave the stomach without great change. Boiled vegetables show much more rapid and complete disintegration. Vegetables high in starch, such as potatoes, show very considerable starch digestion before leaving the stomach. In certain cases hardly any starch reaction could be obtained toward the end of digestion.

VIII

The eighth paper describes the effect upon gastric digestion of changing a palatable diet into an unpalatable one, by jumbling together into a mess all the foods used in the meal, smearing the food and dishes with charcoal to make them look dirty, laying newspapers instead of a cloth on the table, and producing an unpleasant smell by means of various chemicals. "In the first case (attractively served food) the nitrogen utilization was 86.7 per cent, in the second (unattractive) it was 85.6 per cent. The nitrogen balance showed a retention in the first period of 3.0 per cent, in the second of 6.4 per cent. This in spite of the fact that the subject was only with difficulty persuaded to eat the unpalatable food, and that another subject who was given the same kind of food became nauseated and could not continue."

At this point the reader may be interested to pause and consider a criticism² which this paper has called forth. The critic objects, that while normal digestive processes might successfully resist the interference of one or two unpleasant associations with food (dirt, bad smell, etc.), the result might be very different if there were a protracted period of subjection to unpalatable food conditions; that the physiological organism should be studied as a unit, and that when we so study it "we not only find that 'psychic stimuli' promote or retard the secretion of digestive

² *Rôle of Psychological Factors in Digestion.* Kantor, *Science*, 52 (1920), p. 200.

juices, but that all actions of the individual are affected by the particular surrounding conditions of such actions." That the Philadelphia investigators are far from defending the wisdom of "eating unpalatable food in untidy surroundings" is, however, quite clear from a perusal of the original article.

IX

The ninth paper reports the profound effect of mental anxiety on gastric digestion. One of the subjects, a first-year medical student whose stomach had always previously been found normal, was given 100 grams of fried chicken on the morning of an important examination in chemistry and wrote his answers during the digestion test. The result was that the stomach emptied itself only at the end of $6\frac{1}{4}$ hours instead of $4\frac{1}{4}$ hours (as in the same test repeated a week later, with conditions removing all mental stress), and the highest total acidity was about 90 instead of about 65, as in the second test.

X

The tenth article reports further tests which confirm the results of those mentioned in the eighth and ninth papers. It reports also tests which show that the sight of appetizing food has a greater effect in inducing a preliminary flow of gastric juice (psychic or appetite secretion) than does either the smell or the taste of it.

XI

The eleventh paper reports a study which was made "of the influence of water, tea, coffee, and cocoa upon the gastric digestion of a uniform mixed meal as measured by the acid responses and evacuation times."

Evacuation of the stomach was not appreciably delayed by the drinking of 1 liter (about 1 quart) of cold water, cold or hot tea, hot coffee, either plain, with cream, or with cream and sugar. The addition of sugar alone to coffee delayed evacuation. Cocoa in 1 liter quantities markedly delayed evacuation. To a less extent this was true of half-liter volumes. One liter quantities of water, hot or cold tea, hot coffee, plain or with cream, delayed somewhat the rise of the level of intragastric acidity (i. e. acidity inside the stomach) as compared with the basal meal alone. As high acidities and normal evacuation were attained, however, these beverages must have stimulated gastric secretion, been rapidly evacuated, or more probably both.

Coffee with sugar alone delayed the development of gastric acidity. Coffee with sugar and cream has less effect. Cocoa delayed distinctly the development of intragastric acidity. One liter quantities of tea and coffee gave rise to marked acceleration of the heart beat, to vasomotor relaxation, tremors, and other nervous symptoms. Cocoa did not produce these effects but brought about a feeling of fullness at the stomach.

XII

The twelfth paper gives the results of 90 experiments with gastric digestion of pies, cakes, and puddings. "The average evacuation time on puddings for all subjects was 2 hours and 18 minutes as against 2 hours and 27 minutes for pies and 3 hours and 2 minutes for cakes. Averaging the highest total acidities, values were obtained for puddings of 92, for pies of 90, and for cakes of 90. Direct comparisons of the three types of foods on the same individuals indicated also that pies were handled more readily than cakes, and pudding somewhat more readily than either."

Fruit pies, such as apple, pumpkin, raisin, and peach, left the stomach in from 2 to 2½ hours and developed a moderately high acidity (90 to 100). Most of the acidity is due to free hydrochloric acid, the acid combining powers of these pies being low. Cherry pie, high in sugar, remained in the stomach a few minutes longer than the above. Rhubarb pie was treated in the same way as fruit pies, leaving the stomach in from 2 to 2½ hours. Custard pies left the stomach in moderate time (2¼ to 2½ hours) and possessed a fairly high acid combining power. Lemon meringue showed a similar response except that the acidity developed more slowly. Mince pies required a rather long time to leave the stomach (2½ to 3¼ hours) and developed high total and combined acidities. Pie crusts alone remained in the stomach distinctly longer than most whole pies or the contents alone of such pies, and gave a lower but more sustained acid curve. On the other hand, differences in evacuation time of whole pies and the contents of such pies were usually very slight so that pies with crust, if properly made, could by no means be classified as difficult for the stomach to handle. The addition of 50 grams of ice cream to a small piece of pie did not increase the burden of the stomach to any marked extent. The addition of 20 grams of cheese to apple pie increased the digestion time only a few minutes.

Angels' food cake remained distinctly longer in the stomach than devils' food cake and developed a higher total and combined acidity. Chocolate layer cake left the stomach in moderate time, acid secretion being depressed by the sugar of this cake. Fresh and old fruit cakes showed almost identical

acid responses and evacuation times in the human stomach. Strawberry shortcakes left the stomach in moderate time (3 to 3½ hours) and developed high intragastric acidities. Lady fingers left the stomach in 3 hours or in about the same time as other cakes. Ginger bread evoked a rather slow acid response and left the stomach in moderate time. Cinnamon buns left the stomach sooner than most cakes but with a similar acid response. Bread with peanut butter remained in the stomach longer than cinnamon buns and developed a higher acidity. Bread with corn sirup left the stomach in 2½ hours, the sirup depressing secretion somewhat.

Doughnuts remained in the stomach a few minutes longer than crullers. Acidities developed a little more slowly in the case of crullers, due perhaps to the sugar and fat content. These fried cakes required a digestion time but little longer than the average for cakes. Cookies, in spite of their high content of dry matter, were found to leave the stomach sooner than most cakes, probably on account of their granular texture. Ginger cookies required a little longer than those less highly flavored, and the acid development was less rapid.

Chocolate corn starch pudding, rice pudding with or without raisins, Indian pudding, bread pudding, and gelatin left the stomachs of individuals of the rapid-emptying type very quickly (in 1½ to 2 hours). Rice puddings with raisins left a little sooner than plain rice pudding. Cabinet pudding, Brown Betty pudding, cup custard, and apple tapioca required only a few minutes longer. Plain tapioca remained in the stomach a little longer than apple tapioca. Plum pudding left the stomach slowly. The highest total and combined acidities were caused by Indian pudding, bread pudding, and cup custard, all of these being high in protein. The other puddings developed moderate acidities except gelatin, which produced little acid stimulation and left the stomach very quickly.

XIII

The thirteenth paper reporting gastric response to sugars and candies, summarizes findings as follows:

Large amounts (100 grams) of cane sugar or of glucose in concentrated solution markedly depressed gastric secretion and delayed evacuation of the stomach. Small amounts (10 grams) of either did not appreciably inhibit. Candies depress secretion and delay evacuation in proportion to their sugar content and the amounts of them ingested. This tendency is influenced, however, by flavoring substances and particularly by added food ingredients such as milk, eggs, or chocolate, which stimulate gastric secretion.

Candies should be eaten not before but after meals. Hard candies which must be sucked are preferable to cream candies for children because of the smaller quantity of less concentrated sugar solution derived from them.

Cane sugar and maple sugar elicited much the same response from the human stomach as glucose, although the possibility that the greater sweetness and less rapid absorption of the first mentioned sugars gives them a slight advantage is not excluded. Soft candies such as bonbons, soft creamy wafers, and the interiors of chocolate creams when given in 100 gram portions exerted the same depressing action on gastric secretion and evacuation as concentrated sugar solutions.

Peppermint oil used as a flavoring agent delayed evacuation, while strawberry fruit flavor appeared to accelerate it. Chocolate appeared to stimulate gastric secretion as indicated by experiments on milk chocolate, chocolate fudge, and chocolate creams, which gave higher acid figures than plain sugar candies. Stale chocolates remained in the stomach relatively long.

The sucking of hard candies introduced but a small amount of sugar into the stomach, which was readily evacuated, and exerted but little action on gastric secretion. Chewing caramels gave rise to a more voluminous secretion than cream candies, but evacuation times were about the same. Salt water taffy gave rise to less secretion, while gum drops left the stomach rapidly with little acid production. Plain marshmallows remained in the stomach rather long, but after being toasted these confections left the stomach rapidly and gave rise to high intragastric acidities. Licorice gave rise to a fairly abundant secretion and remained in the stomach for nearly three hours.

Sugared or buttered pop corn developed a moderate acidity and left the stomach rather quickly. The addition of honey to bread did not delay evacuation, although acid production was somewhat depressed.

It is to be noted, however, that this study of the effect of candy and syrup upon gastric action, differs in one important respect from the similar studies previously made on other foods. 100-gram portions of most of these foods correspond very well with amounts which may well be served at a single sitting; but in the case of candy or syrup, 100 grams is a larger amount than most persons would be likely to consume at once. It will be noted that, in the instances cited above, where this amount was reduced (honey on bread, only 20 grams; sucking of hard candies, only 5 to 15 grams actually ingested), the unfavorable results of sweets in the stomach were minimized.

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THE FOOD OF THE IMMIGRANT IN RELATION TO HEALTH

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*(Concluded)*THE ITALIANS¹

Italy has a climate much like that of California, which gives the people a long farming season, but in the hottest part of the summer in southern Italy very little work is done during the middle of the day. Wheat, corn, and other cereals, vegetables, fruits, chickens, pigs, and goats' milk constitute the food products of the farms. Some yield a greater variety than others, depending on the ambition and aggressiveness of the farmer.

The Italians make their own cheese from goats' milk; they lay in a store of dried peppers and strings of garlic for the winter, and they make enough tomato paste to last during the season. Here and there one finds olives raised for family use. These are pickled, both ripe and green, and used not only as a relish, but cooked with macaroni or, in northern Italy, with cornmeal.

The Italians who come to America are the peasants or country land workers. They are heavily taxed at home and almost no educational opportunities are provided for their children. Ready money is scarce, and saving is a slow process. The needs of the family are supplied from the farms direct, or by exchange with neighbors.

Italians may be divided into three groups: those from northern Italy, those from central Italy, and the sea-coast group—the Sicilians and those living on the shores of the Adriatic. The Northern group know as little about the foods of the central and sea-coast groups as they do of their dialects, and vice versa.

The Italians from the northern provinces use stronger drinks than wine, both at and between meals. Their diet consists of black coffee for adults, goats' milk for children, and bread without butter, for break-

¹ Studies already published concerning the Italians in this country include:—Dietary Studies in Chicago, 1895-96, Bulletin 55 of the Office of Experiment Stations; Italians in Chicago, in Report of the U. S. Commissioner of Labor, 1897; G. LaPiana, Italians in Milwaukee, 1915; The Italian in Chicago, Bulletin of the Chicago Department of Public Welfare, Feb. 1919. The first mentioned bulletin also includes a study of Bohemian diet.

See also Italian Cookery, by Eva Mariotti, in the JOURNAL for August, 1919.

fast. The bread is made of wheat, home grown and ground. It is heavy and dark in color because the wheat is not put through any refining process. The bread is made in large round loaves, or in oblong pieces, and is baked on the bottom of the oven without being placed in tins. Oftentimes it is baked on the stones in one side of an open fireplace, or out-of-doors on heated stones. This gives a heavy crust on all sides.

The mid-day meal is not considered an important one, as the men are out in the fields during the farming season which lasts from early spring till late fall. Often the women are with them helping with the work. Sometimes they take along bread, cheese, and coffee, sometimes a piece of sausage. If they return to the house they have bread, fried eggs, and black coffee. The important meal is served at the end of the day, and preparation for it is generally started early in the morning. The black pot is put over the fire, and into this is put a small amount of meat or some beans. Their variety of the latter is so great that they can use a different kind each day in the week if they wish. Later they add vegetables, then macaroni, and lastly fat, either lard or olive oil. Polenta may be started in this same black iron pot. This is a thick corn-meal mush, to which is added tomato paste or ripe tomatoes. Sometimes it is changed by the addition of grated cheese or bits of pork or garlic. It is eaten hot or, if allowed to cool, is sliced and fried in olive oil. This is eaten with bread and butter.

Proceeding south in Italy one finds the use of alcohol decreasing and more wine used at meals and on social occasions, accompanied by cakes. The food produced in central Italy is not very different from that of the North. It is, however, raised more abundantly, as the farming season is no longer. Fruits and vegetables are produced in quantity and the poorest people have them in abundance. Very little meat is used; it is served not more than once a week in some families, and in others on festive occasions only. Here again we find the many kinds of "pasta" or macaroni used in combination with different vegetables, garlic, and oil. When bread is eaten with it, no butter accompanies it. The peasants use very few pastries or cakes except on feast days; then they are elaborate, such as "Gateau Margherita" made with ten eggs and whites of five more, butter, flour and almond flavoring.

In the frosting of cakes the Italians exercise all their artistic ability, beautifying and ornamenting them. It is because of the expense and the unusual amount of time and work it takes to make them that pastries are not used oftener. Fruit takes their place in the every day diet of

the people. Goats furnish milk for the family. The children have it to drink, and the surplus is used for cheeses of various kinds.

Thus we see that the people of northern and central Italy have a very well-balanced diet, with protein from milk, cheese, eggs, and meat; carbohydrates from macaroni in its various forms and bread; mineral matter from fruits and vegetables; and fat from olive oil. From the milk, vegetables, and egg yolks they derive vitamins to promote growth. It is difficult to measure their daily food in calories as they generally have a one-dish meal prepared in a large kettle from which each one helps himself, eating until he is satisfied.

The occupation of the southern Italians outside the large cities, is fishing. Some are engaged in the sponge fisheries, others in coral fishing, while the largest proportion are fishing for food. As a result the sea-coast people have a more varied diet than the other two groups. Fish of innumerable kinds, including shell fish, are added to their daily menus, these ranging from snails, the smallest variety, to ink fish, one of the largest. Snails are sometimes combined with rice or macaroni. They are put into water and left to soak out of their shells. Then the shells are taken out and the water turned off, leaving the snail meats in the bottom of the dish. These are scooped out and mixed with the macaroni, to which may have been added garlic, green or red peppers, or tomatoes, for the southern Italians are fond of more highly seasoned food than the other two groups. All small fish are used in combinations of this kind, while larger fish are boiled, baked, or fried in olive oil and served with a tomato sauce, to which garlic and green peppers have been added.

The diet of the Italians in the cities is more expensive and varied than that of the people in the rural districts. Incomes are larger and transportation brings food materials from all parts of Italy, from northern Africa and even from this country. These people use more sweets, in the line of pastry and cake. Afternoon tea is always accompanied by tea cakes and light wine is served with small cakes.

Throughout Italy the variety of foods is more limited in the winter than in the summer, as the people have little knowledge of preserving fruits and vegetables, except the making of tomato paste, the pickling of peppers, cucumbers, and olives, and the drying of peppers and garlic.

On the arrival of the Italians in the United States they readily find friends and neighbors from their own section of the home country and establish their homes near them. From the different foods carried in

the markets one can generally tell from what locality the people came. Macaroni is not only imported, but is also manufactured in this country. There is Indian meal for their polenta, meat and fish in abundance, and plenty of vegetables and fruits of various kinds, but everything is much more expensive than at home. The Italian laborer here is paid larger wages, he handles more money than in Italy, but with the joy of this comes the realization that it costs much more to live.

The most important food that is missing from the Italian diet in this country is milk. Herds of goats and cows with their calves are not driven around our streets from door to door to furnish the day's supply of milk for a few pennies, as is done in some of the cities of Italy. No great effort was necessary in Italy to have milk; goats were inexpensive, both their first cost and their maintenance; cows were always kept on a farm if goats were not, and the more well-to-do often had both. These animals were considered as much a part of the place as the grape vines and fruit trees.

In this country it is an effort to get milk and it has to be planned for. As it is usually considered a drink rather than a food, the food is bought first; then if anything is left, and usually there is not much, it is used for milk.

More meat can be had than in the old country, and the Italian enjoys it, and feels better satisfied when he has it in large proportion with his macaroni and olive oil. While it was used only once or twice a week in Italy, now it becomes part of the daily dietary. The family like vegetables, but to get from them the amount of satisfaction and bulk to which they are accustomed would incur too great an expense. Either they leave out both milk and meat, and live largely on starches—bread, macaroni, and potatoes—and vegetables, or meat is used at the sacrifice of vegetables and milk. When the health of the family suffers through this great change in diet, one often hears, "My man no like his work, he sick," or "My child, he no good since he came here," always attributing the difficulty to the wrong cause. Eggs are another staple in the diet in Italy which is almost prohibited here because of high prices, unless the family raise chickens. Many of their soups require a large number of eggs, eggless soup being almost unknown to them.

These conditions and changes help to indicate the hard problem which the woman in the Italian family has to meet in this country. Doubtless she is unaccustomed to marketing, and generally has no one to help her who has solved the problem, so she quite naturally follows in the foot-

steps of others who have known no more than she "the way out" into a dietary suited to the new needs of her family and to American supplies. The result is that a readjustment takes place without any real plan for an adequate diet. The raw food materials of the Italian diet, many of which were easily procured from their own farms, when combined in their home country ways, furnished a cheap well-balanced diet. In this country, because of greater cost and more difficulty in securing, the Italians often have a poorly-balanced diet, and one short in some of the most important food elements.

The Italian children are given the adult's diet as soon as they are out of swaddling clothes. The larger the abdomen the stronger and healthier the mother considers the child. A diet of milk, strained cereal, and fruit juices is unknown to an Italian mother. Too large an amount of macaroni or rice and lard are usually included and often the children suffer from constipation because of this excess of starch with few vegetables and little fruit. The children learn to take tea or black coffee and bread without butter for breakfast. Usually this means a meal of 200 to 250 calories, composed of carbohydrates, instead of one of 500 calories, such as they should have obtained from a combination of protein, carbohydrates, mineral matter, and fats. At noon the meal often consists of bread again with a piece of bologna and more tea or coffee. At night or supper time comes the big meal of the day which is started in the morning, as in their native country, and cooked either in one large kettle or in several small ones, the contents being put into one in the last process of preparation.

The Italian woman, when she does cook a meal, spends much time and care, and the results are very appetizing. This fact gives encouragement, showing what an apt pupil she would be if taught early on her arrival how to market, what raw food materials like those of her home country can be secured, what substitutes can be used, and what a day's dietary, breakfast, dinner, and supper, should contain *and why*. In attempting to furnish this instruction, native dishes and raw food materials should be recognized and preserved as far as possible. If olive oil is a luxury, other vegetable oils may be introduced. Soups may be given that will have the Italian flavor of tomato or garlic or both. To them may have been added macaroni in one of its various forms, or rice, and this will furnish thickening in the place of eggs. Milk soups will be acceptable only when highly flavored or after the family have learned to like white sauces. When the value of the vegetables the Italians have

always cared for is explained, often they are willing to substitute more of them for meat. Cheese is used more sparingly here because the people cannot make it themselves and therefore must buy it. This adds another expense, with the result that less is used.

The Italians have as good combinations of food from which to select as can be found in American cook-books, when special diets must be given to those who are not well. Italian children do not need to be encouraged to eat macaroni, vermicelli, or spaghetti, which are usually well cooked. They are quite ready to eat oat meal or rolled oats if these are cooked in milk and raisins added. A constipation diet includes vegetables, served in the many different ways of cooking and combining, and fresh fruit or fruit juices. When constipation is found among the Italians it is usually due to the fact that they have been financially unable to secure vegetables, fruit, and olive oil and have lived exclusively on macaroni, rice, and lentils.

An Italian patient with nephritis finds it very hard to leave cheese out of his diet. He does not miss the other forms of protein so much. Very little meat is used at any time; eggs are used as thickening, and would not be missed if another thickening were used; but cheese furnishes flavor for many dishes. Therefore if any protein is to be allowed, cheese should be selected.

Tuberculous patients may be given milk in the same forms as are prescribed for undernourished children, and eggs in soups. The Italian people are not in the habit of using soft eggs, but have many recipes for using hard-boiled eggs. Patients may be taught to poach or drop them and serve a little grated cheese on them. In this way they learn to eat them. Sugar may be prescribed in fruit compotes—stewed fruits, made of either fresh or dried fruits. Raisins and almond paste are other forms of sweets.

Diabetic patients find it very hard to adjust themselves to a diet without any "pasta" or macaroni. Among the poorer people it has always been the staple at every meal. Vegetables used by them in many combinations are prescribed for this disease. Tomatoes may be scooped out, an egg dropped in each, and the tomatoes placed in a small dish and baked until the eggs are set. Mushrooms are often chopped and baked in tomatoes. Beans of all kinds are used in their dietaries and must be removed. Often the use of mushrooms may be encouraged in their place. Endive is enjoyed as well as dandelions and spinach.

If the Italians can secure their preferred diet it is usually well-balanced. Naturally they are painstaking, good cooks. It is not, therefore, at all impossible for a person who knows their native dietaries to help them to adjust themselves to the conditions in this country and to the needs in their local environment. Understanding of their dietary background is absolutely essential to successful results.

APPLICATIONS TO HEALTH WORK AND TO INSTITUTIONAL SERVICE

From our studies of dietary backgrounds it has become apparent:

1. That a family coming to this country from a wholly different environment is under an enormous handicap in attaining a satisfactory diet, particularly when the income is small.
2. That doctors, nurses, social workers, and even dietitians generally lack knowledge of the native diets and usual food habits of the foreign-born.
3. That a large number of the foods of foreign-born peoples are well adapted to their physical needs.
4. That most of these foods can be obtained in this country.
5. That the dietary errors arising in this country are largely due to disturbance of the balance in the diet due to such causes as change of environment or new scales of prices; and that the problem before the dietitian is not so much to introduce a complete "American" dietary as it is to restore the former dietary balance by supplying lost elements.
6. Knowledge of foods of the foreign-born and of their native dietaries is the foundation of all success in this endeavor. It is a necessity in dealing with many specific problems of health or of disease, and is invaluable as a means of mutual understanding and sympathy between the American-born and the immigrant. "The way to a man's heart is through his stomach." The soul of a family may be reached through the daily chores of the household.

It is obvious that a study of this kind should be extended to more race groups than the four which we have taken up as examples. Moreover it would be useful to enter into more detail in many respects, for success in dietary work, after certain general principles are accepted, is largely a matter of detail. Certain particular needs appear to arise and shape themselves as outstanding recommendations even as the result of this incomplete and tentative survey.

1. There is an evident need and a demand for printed material for professional workers such as visiting nurses, dietitians, home economics teachers, and social workers. There would seem to be a place for this material published in several forms as:

(a) A text-book, for colleges and hospitals where young women are trained as home economics teachers, dietitians or nurses, including a list of foods and the recipes of foreign diets corresponding to well-balanced American diets.

(b) A book somewhat less formal in character, for dietitians, visiting nurses, and medical-social workers, covering the diets of the different nationalities and races in relation to health, with particular instructions in the preparation of food, as well as descriptive matter and general principles.

(c) Several single reprints in leaflet form of this material for each nationality or race, each reprint containing some statement of general principles, a brief account of the dietary background of the race group, and also practical recipes.

2. There is need for published material which would enlighten Americans regarding the practical utility and enjoyability of many foreign foods. A study of "Foreign Foods which would Improve the American Dietary" would be an Americanizing agent of practical value for the use of home economics sections of women's clubs and similar organizations. American diet would be improved and (psychologically speaking) be enriched; and many Americans would be given a sympathetic appreciation and understanding of our foreign-born population through the practical medium of the kitchen and the dinner table.

3. The great practical interest which everybody has in food should be made use of in the teaching of English. There would seem to be room for the preparation and publication of an American Homemaking Primer, telling briefly and simply what to buy, how to use American stoves and American utensils, and introducing the best American foods to the reader. Such a primer might be especially good for the foreign-born woman who has just learned or is just learning English, or such a primer might also be printed in a foreign language or be bi-lingual.

4. An "International Menu" is needed for use in institutions of all kinds receiving any number of foreign-born. An "international menu" is one which is not confined to American dishes, but which contains each day at least one dish especially adapted to at least one of the nationalities or races represented among the patients. This would demon-

strate to the patients that the dietitian had considered them and would have a good psychological effect which would of itself help them physically. Thus in a menu for an institution with many different race groups, a characteristic Italian dish might be included one day, a Polish dish at another meal or on another day soon thereafter, and similarly the next day might remember the Jewish or Russian patients.

Such an international menu need not make the diet less acceptable to native-born Americans. It would give greater variety and would help the dietitians in their endless search for something new. As must be borne in mind, the practical value of such a menu lies in its psychological quite as much as its physiological effect upon the immigrant. The work of making up such an international menu is a matter of practical and not difficult detail. The dietitians or other persons responsible in hospitals, sanatoria, convalescent homes, and restaurants in industrial plants should (wherever the racial constitution of their people requires it) be made responsible for developing something of this sort.

5. The diet lists used by medical institutions such as hospitals and dispensaries should be adapted to the people, as well as to the diseases which are treated. The habitual foods of the nationality or race dealt with must be in the mind of the person who prepares the diet list, if it is to be of much real service. This means that the dietary problems of patients need to be handled by dietitians, visiting nurses, or social workers, who have some knowledge of foreign as well as of the characteristic American diet. The average visiting nurse or medical-social service worker cannot become an expert in dietetics and must depend upon the advisory dietitian or the visiting housekeeper. It may be expected that dispensary and visiting nursing associations should provide themselves, directly or through the cooperation of some other organization, with at least the advisory services of such a dietitian. Food clinics, in which dietitians can be consulted by nurses or general workers and to which patients can be sent when necessary, are needed in the large dispensary and in connection with the Health Centers which are now being established so rapidly throughout the country.

FOR THE HOMEMAKER

PRACTICAL BUDGET ACCOUNTING

MAURICE LE BOSQUET

Director, American School of Home Economics

No course or text on home management would be considered complete without full consideration of the family plan of spending, or the budget, and of the household accounts necessary to keep a check on the division of expenditures, but, of a hundred families, how many really plan their spending or have any more than a vague idea of what becomes of their income from year to year? Personally, I know of only two such families. The distaste for keeping household or personal accounts is well nigh universal. I do not keep such accounts—probably you, who read this page, do not; yet we all realize that planned spending will give more for our income than haphazard spending and that if we really knew how much we are spending for food, clothing, or luxuries, from month to month, we might reduce our useless and thoughtless expenditure. Then we could obtain more of the things we really want but never seem to have money to buy, and we could save more for investment.

Some months ago, the secretary of the American Bankers Association sent us a request for some material and with the letter enclosed a reprint of an article from the journal of the association on "The Home Economics Department." A number of banks have lately established such a department, sometimes called a Home Service Department, with the purpose of showing families how to save money. As a plan of spending, or budget, is the best way to stretch the family income to provide for saving, the family budget is used as the basis of the work. A Budget Account Book is furnished to depositors, together with suggestions for drawing up the family budget.

While we were much interested in this new extension movement in home economics, we felt from our extensive experience in trying to get housekeepers to keep household accounts that the account book scheme would be of only limited success because only a very small proportion of women (or men) could be induced to keep household accounts for

more than a month or two; but we suggested a plan that might make the household budget a practical program. This was to the effect that a checking account could be used as a fairly good accounting system, provided that the full family income be deposited in the bank and that all expenditures be made by check, even to obtain cash. It was suggested that a special check book could be designed which would give the distribution of expenditures and make budget accounting nearly automatic.

This idea seemed to arouse interest and the illustrations herewith show how the accounting check book has been worked out.

MONTH OF <u>Oct-Nov</u> 1920				EXPENDED FOR						
DAY AND NO.	RECORD OF CHECKS	AMT OF CHECK	BALANCE	SAVINGS	FOOD	CLOTHING	RENT & OPERATING	ADVANCEMENT	LOAN	PERSONAL
	TOTAL BAL. FORWARD	407.11	260.86	50.00	46.86	81.27	94.90	41.91	49.53	36.64
21 st	TO MRS. A. L. MASON	12.30	248.56	.	.	12.30	.	.	.	.
20 th	TO S. S. McDONALD	25.08	223.48	.	25.08	.	.	.	.	.
10-28	TO J. B. MASON 12.30 1/2	12.31	211.17	.	12.31	.	.	.	.	.
30 th	TO FLEMING BROS.	18.81	192.36	.	18.81	.	.	.	.	.
10-29	TO H. B. MASON	76.20	116.16	50.00	90.75	77.57	74.70	41.91	49.53	36.64
21 st	DEPOSIT 200.00	.	404.65	.	.	.	.	.	.	.
	SALARY			.	.	.	.	.	.	.
15 th	TO E. STATE BANK	50.00	354.65	50.00	.	.	.	.	.	.
11-1	TO EDUCATIONAL FUND			.	.	.	.	.	.	.
2 nd	TO A. H. WHITNEY & CO.	60.00	294.65	.	.	.	60.00	.	.	.
11-2	TO RENT			.	.	.	.	.	.	.
2 nd	TO CASH A. P. B.	10.00	284.65	.	3.42	1.40	3.50	.	.	1.48
11-3	TO CASH A. P. B.			.	.	.	.	.	.	.
	DEPOSIT			.	.	.	.	.	.	.

FIG. 1

RECEIPTS MONTH OF <u>October</u> 1920										
DATE	FROM	CASH	INTEREST	DIVIDENDS						TOTAL
10	A. S. H. E.	2.00								2.00
10	Liberty Bond Company		21.25							21.25
15	A. S. H. E.	2.00								2.00
										45.25

MONTHLY SUMMARY OF EXPENDITURES										
SUB-DIVISION	SAVINGS	FOOD	CLOTHING	RENT	OPERATING	ADVANCEMENT	LOAN	PERSONAL		TOTAL
1	50.00	30.42	10.00	60.00	10.40	12.41		20.00		
2		13.06	11.93		16.00	14.50	10.00	7.14		
3		14.37	13.41		4.50	10.00	3.10	8.80		
4		24.20	9.23		50	5.00	36.43	4.00		
5		3.50			3.50					
TOTAL	50.00	90.75	79.57	60.00	34.90	41.91	49.53	36.64	463.30	
BUDGET	50.00	90.00	70.00	60.00	30.00	40.00	30.00	30.00	400.00	
Plus or Minus		+ 7.75	+ 29.57		+ 4.90	+ 1.91	+ 19.53	+ 6.64	+ 63.30	

FIG. 2

Figure 1 gives a portion of the special interleaf and explains itself. The usual notations of date and number of the check, to whom drawn and for what, the amount of check, deposits, and bank balance, are provided for, and at the time of recording each check the amount is written in the columns provided for Food, Clothing, Operating, and other items. This gives a classified record of what is being spent from day to day and, at the end of the month, simple addition gives the total expended for the month and the total in each division of expenditure.

The other side of the special interleaf, shown in figure 2, provides for a classified record of receipts which are deposited in the bank and also a table for a Monthly Summary of Expenditures with five subdivisions under each main division. A list of sub-divisions suggested is given in the following key.

Key to subdivisions

SAVINGS	FOOD	CLOTHING	SHELTER	
			Rented	Owned
1. Savings Account, etc.	1. Groceries	1. Man's Clothes	1. Rent	1. Int., Ins., Taxes
2. Life Insurance	2. Meat, Fish, Fowl, Eggs, Cheese	2. Wife's Clothes	2. Business Carfare	2. Business Carfare
3. Payment on Bonds, House, etc.	3. Fruit, Vegetables	3. Child A Clothes	3. Fuel	3. Fuel for Heating
4. New Buildings or Additions	4. Milk, Cream, Butter, Ice	4. Child B Clothes	4.	4. Repairs and Decorating
5.	5. Outside Meals	5. Child C Clothes	5. Yard	5. Yard Expenses
OPERATING	ADVANCEMENT	LUXURIES	PERSONAL	
1. Fuel, Light, Water, Telephone	1. Educational: Books, Magazines, Papers, Stationery	1. Tobacco, Candy, etc. Personal Service	1. Man's Personal	
2. Wages: Service, Laundry Expense	2. Health: Physician, Dentist, Medicine	2. Entertainment, Travel, (Club Dues?)	2. Wife's Personal	
3. Equipment Repairs, Replacements, Up-keep	3. Church, Red Cross, etc.	3. Gifts, Tips, Flowers, Jewelry, etc.	3. Child A Personal	
4. Income and Personal Tax, War Taxes, Ins.	4. Music, Theatre (Movies?)	4. Auto Expense, Taxi	4. Child B Personal	
5. Miscellaneous	5.	5.	5. Child C Personal	

It is obvious that the key can be changed or modified to suit each family or individual using the check book. If preferred the United States Department of Agriculture classes of food might be used, i.e., 1 Fruits and vegetables; 2 Milk, cheese, eggs, meat, fish, and legumes; 3 Cereal products (also sugar, etc.); 4 Fats—butter, cream, lard, and oils; 5 Meals Outside. Under the Clothing column for personal accounting the following sub-divisions might be used: 1 Ready-made clothing; 2 Dress goods and making; 3 Underclothes, etc., 4 Footwear, 5 Cleaning and repairs. If the above or similar sub-divisions are to be kept, it will be necessary to indicate them on the check record. For example, in the first check recorded (fig. 1), the (2) after the word "dressmaking" indicates that the expense was for wife's clothing.

WEEK OF _____					19__				
SPENT FOR	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	TOTAL	ESTIMATE
SAVINGS									
FOOD	GROceries								
	FRUIT, VEG.								
	MEAT, FISH								
	MILK, CREAM								
	BUTTER								
MEALS OUTSIDE									
	READY MADE								
	GOODS AND MAKING								
CLOTHING	UNDERWEAR								
	SHOES ETC.								
	REPAIRS								
CLEANING									
RENT, CARFARE									
OPERATING	GAS, ELECT.								
	TEL. WATER								
	WAGES								
	LAUNDRY								
ADVANCE- MENT	WAR TAXES								
	PER. TAX								
	EDUCA- TIONAL								
	HEALTH								
LUXUR- IES	CHURCH								
	RED CROSS								
	TOBACCO								
GANDY, ETC.									
PERSONAL									
TOTAL									

AMT. ON HAND - \$ _____

AMT. RECEIVED - \$ _____

SUM - \$ _____

MONEY LEFT \$ _____

SUM - \$ _____

FIG. 3

To obtain cash, it is an easy matter to have checks cashed by local trades people, or at any bank. The last check recorded in figure 1 shows how such cash expenditures might be distributed. A Budget Memorandum card, folding to calling card size, has been designed to keep tract of personal allowances and cash expenditures, or the Weekly Allowance Book, illustrated in figure 3, might be used. The illustration

is full size, making a little book small enough for the pocket book. The Weekly Allowance Book is designed more particularly to keep track of what becomes of the weekly pay envelope where the family does not use a checking account.

For emergencies and to obviate the necessity of carrying much currency in the purse, one or two blank checks may be taken from the back of the check book and carried in the pocket book. When used, the expenditures should be recorded in the next check recording space, the next check detached and carried as a new blank check.

The special interleaf illustrated is designed for the small size checks, three checks to the sheet. Each record page provides for recording 15 checks and is followed by five sheets or 15 checks. This makes a convenient sized check book, about the width of this page and one and one-half inches shorter. A check book, containing 300 checks is less than one-half an inch thick. The special interleaves with page of directions and table for a yearly summary of expenditures may be obtained by any bank or individual at small expense.¹ The banks usually have on hand unbound small sized checks or, if not, the large sized checks may be used. The banks will have the books made up without charge or at moderate cost.

I have tried out the Accounting Check Book in my own family for three months and it is a decided success. Even now, we have been "shocked into reform" on certain expenditures. We are about ready to draw up a yearly budget for our family, a family that is decidedly not "theoretical." At the end of the year, we shall have a permanent record of every penny received and expended and I am certain we shall have obtained more satisfaction and more permanent value for our money. It is a great relief to know exactly "where you are at" financially in these uncertain times.

¹ The special interleaves may be obtained at 35 cents per set, and the Weekly Allowance Book at 10 cents each of the American School of Home Economics, 506 W. 69th St., Chicago. Sample pages on request.

SOME DON'TS FOR THE CONSUMER OF GAS¹

Don't burn lamps in daytime or use lamps that are improperly adjusted. Each incandescent mantle burner has an adjusting device at the base for regulating the air and gas. Both must be adjusted to secure the maximum illumination without any hissing or roaring sound.

Don't use more gas under the hot-water tank than is necessary.

Don't burn gas without proper air mixture. If the mixture is not correct a wasteful flame will be produced. A pale blue flame will give the most efficient results.

Don't turn the gas on for cooking until the vessel is ready for use. Turn it off immediately when the cooking operation is completed.

Don't use gas at high pressure with long flames. Short flames, if properly directed, consume less gas for the same cooking operation.

Don't turn the gas high after the cooking vessel boils. You can not make the food any hotter. It will simply boil and no more. After the contents begin to boil the same temperature can be maintained with a smaller gas consumption.

Don't burn gas in a furnace without automatic thermostat control. Such an automatic device is always on the job, ready to prevent the over-heating of rooms, and therefore waste of gas, in addition to keeping the room at a uniform temperature. The cost of such an automatic device is not large and it will soon pay for itself in the saving of gas.

Don't keep rooms at over 68°. Don't keep windows or doors open for other than ventilating purposes; lower the temperature of the room by turning down the gas.

Don't burn gas in an ordinary coal furnace. It is wasteful and its use requires much more gas for the same heat delivered into the room than is required with specially built natural-gas furnaces.

Don't permit gas leaks on the premises. But never hunt for a leak with a match or light. The easiest way is to put soap-suds over the pipe or connection suspected. If gas is escaping the soapsuds will bubble. In many houses where tests have been made it has been found that about one-sixth of the total gas that passed through the meter was wasted by leaking pipe and fixtures.

¹ These directions are given with especial reference to natural gas, but nearly all of them apply equally to the manufactured product. They are quoted from *Use and Conservation of Natural Gas*, issued originally by the United States Fuel Administration, and reissued by the Penn. State Supt. of Public Instruction, especially for use in schools.

MORE FACTS ABOUT THE FARM WOMAN

IN REPLY TO QUESTIONS FORMING PART OF THE FARM HOME SURVEY,
1919

Kitchen arrangement

SECTIONS	DISTANCE FROM WORK TABLE TO OTHER POINTS					HEIGHT OF WORK TABLE
	To sink	To stove	To cellar door	To kitchen pantry	To dining table	
	<i>steps</i>	<i>steps</i>	<i>steps</i>	<i>steps</i>	<i>steps</i>	<i>inches</i>
Eastern.....	5	4	9	7	9	30
Central.....	4	4	11	5	8	30
Western.....	3	3	14	6	8	31
33 States.....	4	4	11	6	8	30
<i>Number of answers:</i>						
Eastern.....	2684	2931	2924	2875	2880	2913
Central.....	2727	3565	3502	3281	3537	3563
Western.....	1091	1908	1461	1436	1875	1924
33 States.....	6502	8404	7887	7592	8292	8400

Sewing done by homemaker

SECTIONS	OWN UNDERWEAR			OWN OUTER GARMENTS			CHILDREN'S CLOTHING			MEN'S CLOTHING		AVERAGE WEEKLY MENDING
	All	Part	None	All	Part	None	All	Part	None	Part	None	
	<i>per cent</i>	<i>per cent</i>	<i>per cent</i>	<i>per cent</i>	<i>per cent</i>	<i>per cent</i>	<i>per cent</i>	<i>per cent</i>	<i>per cent</i>	<i>per cent</i>	<i>per cent</i>	
Eastern.....	20	55	25	15	60	25	21	51	28	24	76	3.44
Central.....	17	58	25	21	65	14	27	49	24	23	77	3.69
Western.....	22	58	20	28	60	12	33	44	23	25	75	3.25
33 States.....	19	57	24	21	62	17	27	48	25	24	76	3.50
<i>Number of answers:</i>												
Eastern.....	3293			3272			2379			2920		2790
Central.....	4094			4113			3378			3763		3324
Western.....	2315			2336			1904			2077		1887
33 States.....	9702			9721			7661			8760		8001

CLEAN RESTAURANTS

A movement to make restaurants cleaner is important to a large majority of households, for many members of the family take at least one meal regularly away from home, aside from the occasional meal that others indulge in.

It is thus a household as well as a commercial step forward that is marked by the formation of a national association of restaurant proprietors, with sanitation as its fundamental principle. Their statement reads as follows: "The long felt want of cleaner restaurants has been keenly realized by the leaders in this industry who have begun to know that the reputation of the restaurant business has been badly damaged by those in the industry who are not running strictly clean places. The association was organized for the purpose of educating the restaurateur regarding the importance of sanitation in his business, and more than that, to guide the public to these places which are striving to run on a clean basis."

That patrons desire clean food served in a cleanly and sanitary manner goes without saying. It is doubtful if restaurateurs could adopt any measure that would be so conducive to increased business as the simple provision of strict cleanliness yet it is strange that such comment as this should be even possible. It is stranger still that it should be necessary to form a national association to stimulate activity in making restaurants clean. We know, however, that where strict supervision can not be maintained, the stimulation of pride will generally bring results.

The California State Board of Health, from whose bulletin the above statement is taken, welcomes this organization and will assist it in every way possible in its endeavor to provide cleaner public eating places. Other state boards of health should do all that they can to help the movement to grow and succeed. Particularly important is this since so much evidence has been accumulating to show that unsterilized table utensils—spoons, forks, cups, glasses—may be the common source of carrying influenza from one person to another.

EDITORIAL

The Sheppard-Towner Bill. It would be surprising, except from former experience, that such a bill as the so-called Maternity Bill should not quickly pass both Senate and House. Even though there has been the usual inertia of Congress to overcome, and the reluctance to enact at this short session any legislation involving the expenditure of money, this bill has been so generally approved, and is so much needed, that it is difficult to understand why decided opposition should have been aroused.

The bill is largely an outgrowth of the experience of the Children's Bureau. When, outside of the devastated regions of Europe, only three countries (Chile, Spain, and Japan) have a higher infant mortality than the United States, it seems time that we undertake vigorous measures to further instruction, such as this bill calls for, in the hygiene of maternity.

Miss Lathrop at the hearing before the House Committee said,

"According to the most reliable obtainable data the United States has the highest maternal death rate in a list of 17 civilized countries, and the chances of a child surviving its first year in this country are worse than in 10 other countries. . . .

"This bill for the protection of maternity and infancy is one result of the social studies of the bureau interpreted into a plan of constructive public action, whose methods of care have been proven sound by many experiments here and abroad."

The bill asks for a Federal Board of Maternal and Infant Hygiene under the Department of Labor, with the Chief of the Children's Bureau as executive officer. The Secretary of Labor, the Surgeon General of the U. S. Public Health Service, and the Commissioner of Education are members of the board.

The bill passed the Senate with some amendments on December 18, and has been delayed ever since in a Committee of the House, which has been giving extended hearings both to those who favor and those who oppose the bill.

Attention, please! The JOURNAL office frequently receives letters from those wanting positions, and occasionally from those with positions to fill, and has been able sometimes to bring the two into touch with one another. It has not had facilities however to carry on acceptably

work of this kind. We propose now to reserve such space as is needed in our advertising columns for the insertion of advertisements at a low rate. If those who know now that they desire a position for next year should immediately insert such a notice it would be possible for those wishing teachers to communicate with them in time. The JOURNAL will be glad to forward letters to any using its columns in this way when they desire not to publish name and address.

OPEN FORUM

The Supply of Home Economics Teachers. In May, 1920 a questionnaire was sent out from Pratt Institute to institutions training teachers of home economics and listed in 1918-19 as having five or more on the faculty, and also to New York State institutions training such teachers. Twenty-eight questionnaires were sent and twenty answers were received—a fine proportion.¹

Comparisons are very hard to make, but a few significant facts were clear. First, these 20 schools graduated about 600 teachers in 1920. Second, in 12 of the schools showing a final increase, there was a falling off in one of the war years, 1915 to 1918. Third, 6 schools showed fewer students entering in 1919 than in 1913, 12 showed more students entering; but the total increase of students entering 18 schools in 1919, as compared with the number entering in 1913, is the surprisingly small number of 71. It is true, of course, that there are many new centers of training. It is true also that many freshmen in home economics in universities never intend to teach, and others never reach that goal. The increase in the large centers of training is certainly inadequate in consideration of the need of large numbers of additional well trained teachers of home economics.

ISABEL ELY LORD.

Teaching Budgets and Accounts in Grades and High Schools. The Department of Household Economics, Teachers College, New York City, sent a letter of inquiry last spring to city supervisors of home economics regarding the amount and kind of instruction offered in the study of children's own accounts and budgets and household accounts and budgets in the grades and high school work in home economics

¹ The two largest training centers in New York State—Cornell and Teachers College—did not reply, and are therefore not included in the figures.

classes under their supervision. Twenty-six city supervisors sent replies giving some facts as to the teaching of budgets and accounts under their direction.

The following summary has been compiled and is here printed as of general interest. In the summary the letter "Y" indicates Yes; the letter "N," No; while "N R" indicates that no reply was given on the particular question.

Is any instruction given on *children's personal* accounts and budgets in the *grades*? Y 11, N 7, N R 8. Offered in 6th, 7th, and 8th grades.

Is such instruction given by special lessons? Y 7, N 7, N R 12.

Is such instruction given by incidental instruction in other lessons? Y 12, N 3, N R 11.

Is such instruction given through definite food work? Y 10, N 2, N R 14.

Is such instruction given through definite clothing work? Y 15, N 4, N R 7.

Are pupils in the grades required to keep their own personal accounts? Y 3, N 20, N R 1, two "help and encourage such accounts."

Three reported accounts kept respectively for 1 month—1 term—1 year.

Is instruction given to children *in the grades* in regard to *household* accounts and budgets? Y 14, N 5, N R 3. Four gave incidental instruction. Offered to 6th, 7th, 8th, and 9th grades.

The time given varied from "little" and "one hour" to "10-12 hours."

In the *high school* is any instruction given to children regarding their own personal budgets? Y 18, N 1, N R 2. Three gave incidental instruction. Two schools had no economic work in high school.

Are *high school* students required to keep *personal* accounts? Y 15, N 7, N R 2. Two gave no work in home economics.

The time for which personal accounts are kept varies from 1 month to 3 years.

In the *high school* is time given to *household* accounts and budgets? N 1, N R 7. Thirteen reported definite time given, 3 incidental instruction, 2 no home economics in high school.

Is high school home project work required in keeping accounts of student's family? Y 6, N 6, N R 12. Two reported "to some extent."

BENJAMIN R. ANDREWS.

Students' Time Record. Several institutions have made a practice of asking students to check up the amount of time required for their various daily tasks. This has been done particularly in the case of

home economics students by those living in practice houses where it has been customary to make schedules of the daily household tasks and keep time records. Cornell University, for example, has a time record sheet which students fill out showing the amount of time required for various tasks in the practice house. The Department of Agriculture in an investigation as to the amount of time for household tasks used a record form in the investigation carried on under the direction of Ilena Bailey in Missouri, Illinois, and Michigan beginning about 1914.

An experiment was tried at Teachers College last year of asking students in Household Arts to keep a time record for three days as to the number of minutes spent in various activities. A record sheet was given in which the various items were classified under personal activities, university activities, and housekeeping. The record sheet carried a list of about fifteen items down its left margin, and across the top were listed, in columns, the hours of the day from 6 a.m. to 11 p.m., with a similar column headed "total minutes" at the extreme right. Students were to write down during the day in the appropriate columns the number of minutes spent in different activities. A summary of eighty one-day records showed a statement of the minimum amount of time, the maximum amount of time, and the "mean" amount of time given by the students as follows: Care of person, minimum of 20 minutes up to a maximum of 120 minutes a day, with the mean time 70 minutes. Exercise, from 0 to 140 minutes with the mean 41. Meals, from 20 to 120 with the mean 81. Social and recreation, from 0 to 360 with the mean 81. Rest, from 0 to 240 with the mean 27. Waste time, from 0 to 120 with the mean 32. Class attendance, from 0 to 480 with the mean 240. Study, from 0 to 480 with the mean 89. Field work, from 0 to 260 with the mean 120. Care of room, from 0 to 140 with the mean 21. Preparation of meals (for 32 keeping house) from 20 to 180 with the mean 60. Sewing and mending, from 0 to 180 with the mean 0. (40 students did no sewing; of the 32 who did sew and mend the time given varied from 1 to 180 minutes, with the mean 40.) The zero reports indicate no time given on the day in question. The number answering varied somewhat for different questions.

The students who kept the record spoke in several cases of the personal benefit derived from the experience. While the arithmetical values given above are not supposed to have any far reaching significance they do give some indication of the amount of time required for various tasks in student life and something, at least, of the general distribution of the students' time.

BENJAMIN R. ANDREWS.

THE QUESTION BOX

Question: Can you tell me how to make the Armenian matzoon and the Greek matzoon? What is the method of preparation of these sour milk articles?

Answer: I do not believe it will be possible for anyone in this country to make exactly the same article as is made in Armenia and Greece. Matzoon is a fermented milk in which two kinds of fermentation are prominent. One of these is the lactic acid fermentation which causes the milk to sour. This is produced by a special race of lactic acid bacteria which can be purchased in drug stores under the name of *Bacillus Bulgaricus*. The other type of fermentation is caused by the growth of yeast and I do not know, and have not been able to ascertain, the variety of yeast which is present in these milks. It is, of course, a wild yeast and not a cultivated pure strain. Matzoon therefore, contains both lactic acid and alcohol, the yeast forming the alcohol. Matzoon differs only in very minor respects from Koumiss, Dadhi, and other similar sour milks used widely throughout Asia.

As these sour milks are produced in the Balkans small amounts of a previous batch of curd are saved to put into the next batch of milk to be soured. It carries with it the bacteria and yeast necessary for the fermentation. The milks are almost boiled, or heated to just below boiling, before putting in the curd. This is to destroy all foreign organisms as far as possible. It may be that some of the large manufacturers of rennet or junket preparations and of *Bulgaricus* cultures for making sour milks at soft drink stands and in the home can supply dried kernels of grain for the preparation of matzoon or other sour milks.

Question: Is there any way of preserving milk for use during the time that the cow is dry other than keeping it in the form of cheese? What is the simplest method of making and keeping cheese? Is there not some way to preserve milk for use as milk, either by evaporation, condensation, or canning that is practicable for farm use?

Answer: The methods of preserving milk for use at a later date are evaporation, condensation, and canning, and also the preparation of dried milks. Dried milks are prepared by two processes, although there are a number of patents protecting minor details in several processes. One is the Just process, in which the milk is thrown upon drums heated from within by steam. The milk dries within a few seconds and

is scraped off of the rotating drums by means of a knife edge. There are a dozen or more brands of milk prepared by this process. The other method for drying milk is that in which the milk is first pasteurized and partly condensed in vacuum. The product is then sprayed into a large room which is thoroughly ventilated with warm air and evaporation takes place almost instantaneously, the solids falling like snow. Many believe that this process produces what is probably the best dried milk on the market. It has a good flavor and is very readily dissolved in water.

I know of no way of preserving milk in the home other than in the manufacture of cheese.

Question: What is the food value of Swiss Chard?

Answer: Swiss Chard is one of the appetizing herbs of the cabbage family. It has essentially the same dietary properties as cabbage, lettuce, spinach, and is relatively low in energy value, but of exceptional value in the diet because of its content of certain mineral salts, especially calcium, and because of the vitamins it contains.

BOOKS AND LITERATURE

The A B C of Exhibit Planning. By EVART G. ROUTZAHN AND MARY SWAIN ROUTZAHN. New York: Russell Sage Foundation, 1918, pp. 236.

Traveling Publicity Campaigns. Educational Tours of Railroad Trains and Motor Vehicles. By MARY SWAIN ROUTZAHN. New York: Russell Sage Foundation, 1920, pp. 142.

The first book is a careful compilation of social experience up to the present in the use of exhibition material as a method of popular education in social welfare work of various kinds.

The chapters answer such questions as the following: Why do you wish to have an exhibit? Who should see it? What will you do with it? What do you wish to say in exhibit form? What forms will best express your facts? How will you utilize the floor space? How shall the exhibit be interpreted? How organized, how advertised, how followed up, and the cost?

Two illustrative plans are given—one for a state campaign centering around a traveling exhibit and one a continuous educational exhibit. The appendices discuss the exhibit budget, outlines for committee work, a baby week exhibit, and a typical explainer's talk. A bibliography follows.

Home economics workers should realize that the use of exhibit material is an art in itself which they can study to the great benefit of the Home Economics Movement. Those who are trying to do health work with children, for example, are finding that posters are a most useful method. Extension workers and even the class room teachers will get suggestions from this book. Classes for teachers in methods of teaching home economics, as in the methods of all subjects with strong social relationships, should be

acquainted with the book and work upon the problems which it treats.

The second book brings together information regarding the many experiments in recent years in using trains, trolleys, automobile trucks and other transportation methods in connection with educational exhibit work. There are chapters on the purposes and advantages of traveling campaigns, on the different types of trains, including those for agricultural instruction, health work, war propaganda, safety first. Another chapter deals with motor vehicle campaigns including traveling dispensaries, child welfare work, speaking tours, and "carrying the canning kitchen to the food supply." Various problems of organization and administration are discussed in successive chapters as follows: Advanced publicity and organization; The message of the tour; Exhibit cars; The tour of the truck or train; and Follow-up work. The book includes also a reference list of train, truck, trolley, and other traveling campaigns and a bibliography.

Home economics workers who are touching the extension work field will find this volume indispensable in that it brings together the best experience both in this country and abroad on traveling publicity methods. Mrs. Routzahn has done a great service in adding this volume to the "Survey & Exhibit Series" of which the initial volume is the "A B C of Exhibit Planning." The old idea that anybody can plan an exhibit or work out publicity plans should rapidly give way to a recognition of the demonstrated fact that we have, in publicity work, an art calling for the nicest sort of discrimination and one to which psychology and sociology and other sciences are making real contributions.

B. R. ANDREWS.

Furniture for Small Houses. PERCY A. WELLS. New York: E. P. Dutton & Co., pp. 35, plates 57. \$7.00.

Thoughtful observers of the growth of national taste, as illustrated in the architectural and art magazines, cannot fail to be impressed and pleased with the evident strong trend towards better housing conditions; even tenements and small apartments deriving the benefit of the best architectural skill. Owners are awaking to the spirit of the times. Because of cooperation and foresight it is now possible for an ever increasing number of people to live pleasantly in small homes of far better design than ever before. When the little house is the unit of a group it is a problem for an architect and he will insist upon giving the people the beauty as well as comfort, which human beings need to be self-respecting.

It is reasonable to hope that our America is gradually growing to be an art loving as well as an art producing country. From the older nations much has come to help us. Needs and desires are not strikingly different on opposite shores of the Atlantic and we can all profit by the experience of the others.

For instance, from England comes this book, called "*Furniture for Small Houses*," describing the results of experiments, at the Shoreditch Technical Institute, to reduce to the simplest possible terms, good form and construction in furniture. There are no startling innovations, no strange novelties in the pieces, but each one designed for the world-old human needs seems to represent the culmination of careful, intelligent study and choice. The book is fully illustrated with photographs and scale drawings of all the articles, a variety of them, for every use, and has a very readable text.

In addition to his study of materials, sizes, and methods, Mr. Wells has thought of design. However plain, none of his pieces is ordinary. Each one has a distinction of line and is thoroughly good proportion. There is almost no enrichment except in a little strap carving or beveling but the corners have been rounded off graciously and

the square legs have been chamfered and tapered off on the inside—little easy refinements that count much and cost only thought. His adaptation of the gate leg table, brought up to date, is interesting and practical, and his various economies of space are also suggestive.

There are suggestions for finishes which are desirable, the most unusual one being the use of paint with a "combed" pattern for decoration. The comb is the tool formerly used in the atrocious process of "graining," now fortunately out of style. The new and legitimate use of the tool opens up many possibilities. The furniture is first painted a pleasing color, as, green and later a different one, as blue. Before the blue is dry, the steel comb is employed over the desired area and a design, wavy or curved perhaps, is etched out, showing the under coat of green.

The effect, though quiet must be iridescent and very attractive. Incidentally, painted furniture has fine decorative value and cheers up an interior wonderfully.

Naturally the owner or tenant of a better home has an added incentive and opportunity to express his taste in furnishing it. The necessary furniture ought to be good to look at as well as to use and he may be more restrained and thoughtful in buying it. Fortunately the furniture makers are producing many well designed articles of simple lines and moderate cost. Schools of industrial training are striving for better design and the people are gradually developing better appreciation.

Such a book as Mr. Wells' should have a wide circulation in school libraries, in shops, and in homes to stimulate and encourage the practical with the artistic in our own efforts.

RUTH ROBINSON TREGANZA,
Teachers College, Columbia University.

Food Facts for the Homemaker. By LUCILLE STIMSON HARVEY. Boston: Houghton, Mifflin Company, 1920, pp. 314. \$2.50.

During recent years many of the more reliable books dealing with food problems have been prepared for classroom study

rather than for home use. For this reason Mrs. Harvey's book represents a somewhat unusual type, for she has tried to combine in it what she feels will prove helpful to homemakers on the basis of her experience as college teacher, a homemaker, and the town dietitian at the Brookline Food Center.

She wishes her book to be of special help to the young housewife and she provides much detailed information not only with reference to methods of food selection and preparation but also with reference to food composition, menu making, and food for children and invalids. Much of the material should prove helpful also to the older housekeeper with a wider range of experience in solving food difficulties.

The text is well written and most of the statements seem based on accurate and up-to-date information. A considerable number of recipes are included and these seem varied and appetizing. However, effort is made to group these recipes according to nutritive function rather than in the way customary in cook books. This is better in some ways but is confusing at times. For instance, soup recipes are scattered through various chapters. Recipes for certain cooked vegetables are found in Chapter X under the heading Fruits and Vegetables, while fruit and vegetable salads are in Chapter XI under the heading Fats; apple sauce and various fruit desserts are in Chapter XII on Sugar; and pickles and preserves are combined with beverages in a chapter entitled Food Accessories. Cake and cake fillings are placed under the heading Flour Mixtures, while simple desserts containing no larger proportion of sugar are placed in the Sugar chapter and recipes for cookies are in the chapter on Food for School Children.

It is doubtless desirable to teach women to think of the type of food value represented in the various parts of a menu, but the difficulties of applying such a classification to complex combinations of different kinds of foodstuffs is well illustrated in this book and would seem to interfere with its value in actual home use.

EMMA A. WINSLOW.

Laboratory Course in Physics of the Household. By CARLTON JOHN LYNDE, Ph.D., Professor of Physics in Macdonald College, Canada. New York: The Macmillan Company, 1919, pp. 146. \$0.90.

This book has been especially planned to accompany *Physics of the Household* by the same author, and covers the ground recommended by the College Entrance Board. The preface states that it differs from similar courses in these ways: it contains exercises as well as experiments; it requires the use of the common weights and measures side by side with the metric system; it uses much apparatus familiar to the student; and it encourages the student to set up a laboratory in his own home. A list of apparatus for a home laboratory is given.

Household equipment and processes are used whenever possible to illustrate the application of the laws of physics. For example, the exercises on lever appliances deal with the tack lifter, scissors, can opener, nut cracker, potato ricer, knife, fork, spoon, broom, fire tongs, coffee mill, ice cream freezer, bread mixer—the last three to illustrate the wheel and axle. In a similar manner kitchen measuring appliances, water supply plumbing, gas plumbing, fire extinguishers, and the vacuum cleaner illustrate other principles of mechanics.

Heat includes exercises on thermometers, the kitchen range, the heating system, the hot water boiler, the fireless cooker, thermos bottles, refrigerators, fuels; while electricity, light, and sound use the same wealth of household illustration.

The book is excellent, not only for home economics students, but for any high school student. No boy or girl could complete such a course without an added interest in the home and the every day processes that are continually carried on there.

Professor Lynde was at one time in charge of the work in physics in the University High School, University of Chicago.

ALICE P. NORTON.

Ladies of Greecourt. By Ruth Gaines. New York: E. P. Dutton and Company, 1920, pp. 246.

Ladies of Greecourt might be called the official history of the Smith College Relief Unit in the Somme, written as it is by Miss Gaines who served with the Unit for many months. As such, it at once claims the interest of the alumnae and friends of Smith College who supported and followed this pioneer woman's college unit during its three years of active service. The book, however, has a wider appeal. Those concerned with home economics in its broad sense and with the progress women made in public work during the war, will find much to interest them in Miss Gaines' discussion of conditions in the sixteen villages in Picardy assigned to the Unit by the French Government. Housing and house furnishing, sanitation, clothing, and nutrition were some of their problems. That the Unit succeeded to a remarkable degree in its efforts to solve these problems can be judged from the tribute paid by a boy in one of the schools it helped to re-establish:

"When you return to your noble country, the void caused by your departure will be great for us, but in spite of the distance be sure that we shall never forget 'the good American ladies of Greecourt.'"

RUTH VAN DEMAN.

Bibliography on the Nutritive Value of Corn. A bibliography of interest to food students is being issued by the Research Information Service of the National Research Council at Washington. It is "A Bibliography of Investigations Bearing on the Composition and Nutritive Value of Corn and Corn Products," prepared by M. Helen Keith at the Illinois Agricultural Experiment Station. About 1200 articles and station bulletins are listed and fully classified with regard to the specific subjects investigated. This is a limited edition in mimeograph form and is sold at \$2.00 a copy. Those who are doing or directing food research, or for any other reason wish to look up the literature of any phase of the questions of the feeding value of corn or any of the many food products made from corn would find this bibliography of great help.

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COMPILED BY MARGARET NORTON

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COMPILED BY MABEL TRILLING

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NEWS FROM THE FIELD

British Research Associations. Research associations for the following trades have now been formed in accordance with the Imperial Government's scheme for the encouragement of scientific and industrial research, viz.: boot, shoe, and allied trades, cotton, sugar, iron manufacture, motor and allied manufactures, photography, Portland cement, woolen and worsted industries, scientific instruments, india rubber and tyre manufactures, linen industry, glass, chocolate, cocoa, sugar, confectionery, and jam manufacture.

Research associations for the following trades are in process of formation: music industries, refractory materials, non-ferrous metals, laundering, and leather trades.

—From *The South African Journal of Industries*, Jan., 1920.

NOTES

There have been some changes, during the last few months, in the personnel of the Office of Extension Work for Women, North and West, of the United States Department of Agriculture, Florence Ward in charge. Agnes Ellen Harris (whose position in Texas is filled by Jessie W. Harris of the University of Nebraska) has charge of the states in the Northwest section (Wash., Ore., Idaho, Wyo., Mont., N. D., S. D.); and Mrs. Edith C. Salisbury of those in the Southwest section (Cal., Utah., Nev., N. M., Ariz., Colo., Neb.) Grace Frysinger is in charge of the Central Western section (Mo., Kan., Iowa, Ill., Mich., Wis., Minn., Ohio, Ind.); while, since Miss Van Hoesen's resignation, no one has direct supervision of the New England section including the six New England states, New York, New Jersey, Pennsylvania, and Delaware. Miriam Birds-eye's work is with the specialists in the field.

Martha Koehne, formerly head of the Chemistry Department at Wilson College, Pa., and chemist in the Ohio State Department of Health, and from 1918-1920 instructor in biochemistry, School of Hygiene and Public Health, Johns Hopkins University, has been appointed assistant professor in the University of Washington to teach nutrition.

The National Research Council and the National Academy of Sciences are to have a new home in Washington. The site for the building has been given through the generosity of a number of well known people. It comprises the entire block bounded by B and C Streets and Twenty-first and Twenty-second Streets, Northwest, and faces the Lincoln Memorial in Potomac Park. Funds for the erection of the building have been provided by the Carnegie Corporation.

Sydney Technical College, New South Wales, announces a special course of instruction for professional women in dressmaking and ladies tailoring. The course includes theoretical and practical instruction in designing and cutting, and lectures in the history of costume, textiles, workroom management, bookkeeping, and a certain amount of instruction in drawing. It is restricted to women in the dressmaking trade.

The Pittsburgh Urban League, one of the many branches of the National League on Urban Conditions among Negroes, gave help and instruction in 1400 homes during 1919. Mr. Jackson, the educational secretary, in seeking material for future social workers, though he has not yet covered the field, has found 450 colored students in northern Universities. Many of these are home economics students.

AMERICAN HOME ECONOMICS ASSOCIATION
 WITH THE DIVISION OF SUPERINTENDENCE, N. E. A.
Hotel Dennis, Atlantic City, February 28 and March 1, 1921

MONDAY, FEBRUARY 28

9.00 a.m.

President's Address

Preliminary Business

General Session. Mary Sweeny, President, presiding

Topic: Does Home Economics Teaching Function as it Should for the Girl of High School Age?

Home Economics in the General High School

Mrs. Henrietta Calvin, Specialist in Home Economics, Bureau of Education

Home Economics in the Commercial High School

Mrs. Evelyn Wight Allan, Prin., Girls' Commer. High School, Brooklyn, N.Y.

Experimental Work in the Merrill-Palmer School

Edna White, Director, Merrill-Palmer School, Detroit

2.00 p.m. General Session. Mrs. Henrietta Calvin presiding

The Responsibility of the Home Economics Teacher to the Community

Agnes Houston Craig, Supervisor of Home Economics, Springfield, Mass.

Topic: Methods of Contributing to Vitality of Teaching in the Grades

The Home Project

Mrs. Maude Gregory Adams, State Supervisor Vocational H. E., Ohio

The School Project

Helen Goodspeed, State Supervisor of Home Economics, Wisconsin

The Use of the School Doll as a Means of Teaching Sensible Dress

Adelaide Laura Van Duzer, Supervisor of Home Economics, Cleveland, Ohio

7.30 p.m. Council Meeting

TUESDAY, MARCH 1

9.00 a.m. General Session. Edna White presiding

Topic: How Can the School Child Be Interested in Right Food Habits through Regular School Channels?

The High School Class in Foods

Florence Willard, Washington Irving High School, New York

Foods Work in the Grades

Mabel C. Bragg, Assistant Superintendent of Schools, Newton, Mass.

What Can the Instructor in Physical Education Contribute?

F. W. Maroney, M.D., Dir. Physical Training, Dept. Pub. Instruction, N. J.

What Are the Educational Possibilities of the School Lunchroom?

Katharine A. Pritchett, Supervisor Nutrition, Dept. Pub. Instruction, Pa.

The Standardization of Nutrition Workers

Mary McCormick, Supervisor of Nutrition, State Dept. Education, N. Y.

2.00 p.m. General Session. Mary Sweeny presiding

Factors Involved in Training Girls as Consumers

S. Helen Bridge, Head of Home Economics Education Dept., Univ. of Nebr.

Points of Interest in Government Research Laboratories for the Home Economics Worker

Minna C. Denton, Assistant Chief of Home Economics, U. S. Dept. Agr.

Business Meeting and Reports of Committees

THE
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No. 3

THE PRESENT STATUS OF VITAMINES¹

KATHARINE BLUNT

University of Chicago

AND

CHI CHE WANG

Nelson Morris Institute for Medical Research, Michael Reese Hospital, Chicago

It is not a simple undertaking to summarize even the more important points in the recent literature on vitamins, because the subject has been developing very fast during the last few years, and parts of it are still much in debate. Information has been gained not only from laboratory research but from observations of the tragic human experience with inadequate war diets.

The material is considered under the headings of the three vitamins now recognized. Fat-soluble *A*, for a number of years known to be present in butter fat, cod-liver oil, green leaves, and certain other foods, is necessary for normal growth and in its absence from the diet there often develops an eye disease known as xerophthalmia or keratomalacia. Water-soluble *B*, fairly widely distributed in plants, is necessary for growth and also for prevention of polyneuritis or beri-beri. Water-soluble *C*, the latest of the three to be recognized, is the antiscorbutic vitamin.

¹ The demand for this paper, first published in January, 1920, has been so great that the reprints have been exhausted for some time. It has been revised therefore and in part rewritten to carry the review of the literature roughly through the year 1920, and reprints will be available.

The authors wish to thank Dr. Lafayette B. Mendel and Dr. E. V. McCollum for reading the first edition of this paper and making important suggestions.

FAT-SOLUBLE A

Effect of Lack of A in the Diet. Dr. H. Gideon Wells,² of the Department of Pathology of the University of Chicago, who served in Roumania under the Red Cross, tells a dramatic story showing the need of this vitamine for children. The scanty diet in Roumania, when he arrived, consisted of little more than a limited amount of corn-meal and quantities of a very thin bran-vegetable soup. There was no milk nor butter, for the Austrians had driven off the cows. Many of the children had eye disease, sometimes so severe as to cause blindness. There also was much of the distressing swollen condition known as war-edema, the latter probably due to the low calories and especially the low protein of the diet. Dr. Wells, at the height of his difficulties in getting food of any kind, learned of a vessel which had put into Archangel with cod-liver oil as its entire cargo. Through the efforts of the Red Cross all of it was sent down, and it saved the lives of many of the children. After their long fat starvation, they took readily what might have been refused under happier circumstances.

In Vienna, too, since the war, where the food conditions have been so desperate, eye troubles have developed in children, though not to such an extent, apparently, as scurvy. Dalyell (1), who with Chick was in Vienna for a number of months, speaks of a girl who had been having only 10 to 15 grams of milk fat daily and who developed severe eye trouble. She was given 10 grams cod-liver oil and 20 grams butter daily, and in 14 days her eyes had completely recovered and she had gained 300 grams in weight.

The need for fat-soluble A is not limited to children or young animals in general. Drummond (2), in London, has shown that as young rats approach maturity their requirement becomes markedly less. They can even live without it in apparently good health for considerable time, but sooner or later they lose weight and often have eye disease. They also show a distinct decrease in resistance to various infections, many deaths from infectious disease occurring. The older the young rats are the longer they can stand the inadequate diet before their decline. Dr. McCollum in his lectures has reported what he believes to be a similar pathological eye effect in adult human beings in certain northern lumber camps where the only fat is cured bacon and where the diet must be almost completely lacking in A. A condition known as

² Personal communication.

"night-blindness" is prevalent—a defect of eyesight not noticed by the non-reading laborer till the dim light of night. In the Madras Presidency, also, eye trouble, keratomalacia, is common among the ill-fed Indians, whose diet is made up of polished rice, vegetable oils, and condiments. The treatment is cod-liver oil, attention to hygiene of the eyes, and a more liberal dietary (1). "There is therefore every reason," says Drummond, "that great care should be taken to ensure that dietaries of adults contain an adequate supply of foodstuffs in which the fat-soluble *A* is present."

Rickets. Not only xerophthalmia but rickets may be connected with lack of the fat-soluble vitamine. It is improbable, however, that a deficiency of this vitamine alone produces rickets, or that the use of the term "anti-rachitic vitamine" is justified as synonymous with fat-soluble *A*, as some of the English investigators (3) believe. McCollum, Simmonds, and Parsons (4) report rachitic symptoms in their rats on several diets with several deficiencies combined. Low fat-soluble *A*, low calcium, poor protein, unsatisfactory salt combinations, acting together, may all contribute. Mellanby (5), one of the chief supporters of the antirachitic vitamine theory, finds that, "when the diet has a relatively good protein content and the animal is active, less antirachitic accessory factor is necessary." Mellanby cites figures of infantile mortality and rickets, both of which are very unusually low in a group of island children, for example, whose diet consists largely of fish, oat-meal, and eggs, especially fish liver, the two latter foods being rich in the "antirachitic accessory factor."

Hess and Unger (6) in New York are very definite in their belief that absence of *A* is not the cause of rickets. They find that rickets may develop in children on a diet rich in milk and cream, and not on a diet of highly skimmed dried milk, sucrose, orange juice (for *C*), autolyzed yeast (for *B*), cottonseed oil, and cream of wheat. This latter diet, however, according to Hopkins (1), may contain, in its large amount of skimmed milk, a quantity of *A* much higher than would be expected from its low fat content. Rickets seems to need further investigation before its etiology is completely established. Whatever its etiology, however, it can, with very few exceptions, be cured or prevented by cod-liver oil, which is almost a specific (1) (7).

Occurrence. The fat-soluble vitamine occurs in more foods than was at first thought, but in variable quantities. Butter fat is still regarded as the most important source, but the quantity (8) therein depends upon

the feed of the cow and upon the manipulation of (see below in connection with stability.) Whale oil is a source, though not so rich as butter. Drummond and his co-workers, using standardized methods of feeding young rats of a certain age of weight, if any, week by week, found that he gained the same satisfactory growth when the fat-soluble A was supplied in 5 per cent butter fat or 20 per cent whale oil. Fish oils, and fish may serve as valuable sources. Oleo oil, as used by Mendel several years ago, contains a fair amount of A, as do oleomargarines made from oleo oil, but not the ones made wholly from vegetable oils (10). However, as Daniels says, "Oleomargarines . . . are not to be considered in the same class as good butter in providing the organism with fat-soluble vitamines." Pig's liver oil, and liver tissue, kidney tissue, and glandular organs in general (11) give fair supplies—that is, the organs of the animal of which we eat little is far superior to the muscle of which we eat much.

As to the usually accepted idea in regard to the lack of A in vegetable oils, Daniels and Loughlin (12) have found very small amounts in lard and cottonseed oil, shown only when large amounts were fed. Their rats grew as well when the diet contained 10 per cent of these fats as with 5 per cent butter fat and 23 per cent cod liver oil. The authors do not give information in regard to the color of the oils, or the commercial treatment of their fats in preparation for the market. Daniels and Coward (13) have also reported the presence of A in small amounts in vegetable oils. Palm oil contains as much A as one third as much as is present in butter, while maize oil and cotton-seed oil contain

very little. "The fat-soluble vitamines need not be sought solely in foods rich in fats" (14). Many vegetables furnish rich sources of fat-soluble vitamines and their value is being more and more studied and appreciated. Spinach, alfalfa, clover, timothy, and tomato promote growth of rats as satisfactorily as an equal small quantity of butter fat; possibly they are even better. Cabbage is not so good; potato contains only a small quantity of this vitamine. The dried green vegetables when extracted with U. S. P. ether gave a green oil equal to about 1 per cent of the dried plant, and as minute an amount as about a drop of this "spinach oil" or other oil fed daily restored normal growth in rats.

It is not only leaves that contain the fat-soluble vitamine but storage organs of plants as well. Carrots, sweet potatoes, even yellow corn, though lower in *A* than spinach and alfalfa, all contain sufficient amounts for satisfactory growth (15) (16). Peas (17) also have a small quantity and possibly bananas (18).

A very interesting generalization has been made by Steenbock (19) about the foods which contain this vitamine: they all contain yellow coloring matter. Butter, egg yolks, cod-liver oil are obvious examples. Oleo oil, the part of the beef fat which contains the vitamine, is yellow; the solid beef fat which lacks it is colorless. Of the commercial oleo oils which he has tested, those most highly pigmented are richest in the fat-soluble vitamine. Colored roots such as carrots and sweet potatoes have it, but sugar beets, mangels, dasheens, and Irish potatoes have little or none. It is probably present in orange juice but not in lemon or grape fruit (20). Spinach and grass, of course, have yellow associated with their chlorophyll, and the yellow separated from the green is found rich in the vitamine. Steenbock and Boutwell (21) made a deep green alcohol extract of alfalfa, saponified it with potassium hydroxide to decompose the chlorophyll and then extracted with ether, getting thus an orange-red extract which, on evaporation, furnished rats with a satisfactory source of *A*. The crystallized carotin isolated by Steenbock did not serve as a substitute for the vitamine, but carotin is a very labile substance and may have changed chemically in the process of removal. Rosenheim, Drummond, and Coward (13) (22) in London have confirmed and extended this view. They have found in liver tissue, besides carotin and xanthophyll, an unknown substance which gives certain lipochrome reactions and seems to be responsible for a much-used color test for cod-liver oil. "It appears reasonably safe, at least as a working hypothesis, to assume that the fat-soluble vitamine is a yellow plant pigment or a closely related compound."

Are Fats or Merely the Fat-soluble Vitamine Necessary in the Diet? Osborne and Mendel (23) have made use of their dried alfalfa with its very high fat-soluble vitamine and very low fat content to study the question of true fat requirement. They found that their young rats thrived on a diet of dried alfalfa, yeast, starch, meat residue, and salts, —that is, a diet almost free from true fats. "If true fats are essential for nutrition during growth, the minimum necessary must be very small."

Stability. The question of stability of the fat-soluble vitamine to heat has been further investigated, leaving still some uncertainty but

with increase of evidence showing non-destruction. Steenbock, Boutwell, and Kent (8) and Drummond (9) a year or more ago published their conclusions that the fat-soluble vitamine in butter fat is readily destroyed by heating at 100° for 1 to 4 hours, and partially destroyed at even lower temperatures. Drummond, interested particularly in the use of hydrogenated fats as butter and lard substitutes during the fat shortage in England, observed that the hydrogenation of the whale oil at 250° for 4 hours completely destroyed A. Even heating at 100° for an hour had the same effect, or keeping it for 18 days at 37° spread out exposed to air.

Osborne and Mendel (14), however, have since repeated their own earlier experiments, passing live steam for two and a half hours or longer into butter fat, and have also treated dry butter fat in an air bath at 96° for 15 hours, and in neither case did they observe a diminution of the fat-soluble vitamine. They raise "a question as to the value of the untreated butter fat or the food intake of the animals used by" Drummond. In other experiments (1) butter heated to 120° *without* aeration was satisfactory, but when air was passed through during the heating, destruction of A seemed complete. Light, too, is apparently an important cause of destruction of A, maybe the most important cause (21).

In plant tissue the vitamine seems to be very stable, either to heating or to drying (24) (14).

Relation to Diet of Cow. The amount of the fat-soluble vitamine in milk or butter is closely dependent upon the diet of the cow, being richer in spring milk when the cows are put out to pasture, and poorer in winter milk when they are on dry feed (25). This fact and related ones in regard to the other vitamines may explain many of the apparent discrepancies in the results of different investigators.

The fat-soluble vitamine therefore seems to be of even greater importance in the diet of young and old than was formerly realized. It is more widely distributed than at first thought—many vegetables, notably those with yellow coloring matter, being very significant sources of it, as well as butter and some other fats. Its stability to heat is still somewhat uncertain, but exposure to light is possibly the most important factor in its destruction.

WATER-SOLUBLE B

Methods of Study. For studying the water-soluble vitamine, observations have been continued on the growth of rats and on the onset of polyneuritis in pigeons and chickens. While it is not definitely proved that these two methods deal with one and the same substance, the assumption that such is the case is usually made. During the past year, however, evidence has increased that two distinct substances may be involved, for a sample of unmilled rice heated to 120° for 6 hours had ceased to be satisfactory for preventing polyneuritis in pigeons but was still satisfactory as the only source of the water-soluble vitamine for growing rats (26).

A new and most promising method of research was developed last year by Williams (27) in the laboratory of Physiological Chemistry of the University of Chicago. Yeast, he believes, unlike the higher plants, cannot grow without this vitamine. Therefore if drops of different solutions, each containing a single yeast cell, are observed microscopically at intervals of a few hours, the growth of the yeast and the number of cells into which it has multiplied will show, not only whether the solutions contain the vitamine, but the relative quantities present. This method is of course much simpler and quicker than the usual feeding experiment.

The method since its introduction has been modified in various ways (28) (29), but also it has been seriously criticized, especially from McCollum's laboratory (30). Not only vitamine extracts but various pure chemicals such as glucose and amino acids stimulate yeast growth. The method, the investigators conclude, is therefore "complicated by so many disturbing factors as to make it of little if any value." Williams and the others who have worked with the method have not yet had opportunity to reply to this criticism.

Occurrence. Water-soluble B occurs less in animal than in plant foods. Milk is by no means so rich in it as was formerly thought. Osborne and Mendel (31) found it necessary to give their rats at least 16 cc. per day for normal growth. They discuss but do not explain to their satisfaction the much-quoted results of Hopkins who secured remarkable growth on adding as little as 2 cc. of milk to a diet on which his rats were failing. They warn against a diet of white bread and only a little milk, or against feeding infants a top milk, water, sugar mixture. Pasteurization does not lower the quantity of the water-soluble vitamine

in milk (32), and condensed and evaporated milk also furnish a satisfactory source. The deficiency sometimes observed in slowly or highly heated milk is apparently due to the precipitation of part of the calcium, rather than the destruction of this vitamine (33). Unlike the case with the two other vitamins, the summer and winter differences in the diet of the cow are not of influence (32).

Muscle tissue also is low in this vitamine, but various other animal tissues—heart, kidney, brain, and liver—are satisfactory sources of supply, a distribution similar to that of *A* (11) though somewhat wider.

An especially satisfactory statement of the occurrence of this vitamine in plants, as so far known, is given by Osborne and Mendel (34) in the *Journal of Biological Chemistry* for August, 1919. They list a wide variety of plant foods, including among others seeds of cereals and a number of legumes, spinach, cabbage, potatoes, and carrots; and they add to the list, from their own recent experiments, the usual edible portion of the onion, turnip, beet (leaves, stem, and root), and tomato. Potato peel is no better than potato. Immature alfalfa, clover, and timothy show decided advantages over the mature. This variation with age may apply to plant foods in general and may mean a real nutritive superiority for young vegetables.

Fruits, too, are rich in *B* (35). Orange, lemon, and grape fruit juices as the sole source promote growth at about the same rate as an equal volume of milk, and dried orange juice is as satisfactory as fresh. The inner peel of orange also contains it. Apples, pears, and bottled grape juice³ are not so rich as the citrus fruits. Nuts have an abundant supply (36). A goodly number of our common vegetables and fruits have thus been tested for *B* and so far without exception everyone has been found to contain it—a much wider distribution than that of *A*.

The part of the cereal that is rich in it is not the bran, as usually supposed, so much as the germ, which is often removed with the bran, e.g., in rice polishings. Commercial wheat bran contains more or less vitamine, according to the amount of the germ associated with it. Of one sample tested by Chick and Hume (37) five and a half times as much had to be used to cure polyneuritic pigeons as was necessary when the germ was used. Our commercial bran is especially thoroughly "skinned" when it comes from large well-equipped modern flour mills (38), and therefore is of little value to correct the deficiency of white flour

³ Welch's grape juice.

and bread. Even the yeast or the milk used in the white bread does not prevent polyneuritis in pigeons (39), though the yeast delays the period of its onset. On the other hand, bread made from real graham flour is adequate. Of course these facts have important bearing upon the kind of flour most desirable from the standpoint of national nutrition. Voegtlin and Myers in a later paper (40) say, "We believe that a product which does not contain any bran but does include the germ would not possess these objectionable features [of causing intestinal disturbances], would, at the same time be more nutritious, and would reduce greatly the possibility of vitamine deficiency in the modern mixed diet."

Yeast (41) is distinctly the richest known source of the water-soluble vitamine, being four times as efficient as dried spinach which ranks next among a group studied quantitatively. Only half as rich as spinach are whole wheat, soy beans, dried eggs, milk solids. Cabbage, too, is not so satisfactory as spinach. Abderhalden (42) has succeeded in protecting pigeons, fed on polished rice, against polyneuritis by such minute daily amounts of yeast as 0.05–0.01 gram.

Stability. Water-soluble *B* is probably not so stable toward heat as we formerly supposed. McCollum's beans and peas (16), which, although heated for one and a quarter hours in an autoclave, still supplied all the *B* that the rat needed, were fed in large quantities, often as much as 25 per cent of the diet. When the food supplying *B* is fed in the smallest amount which will produce growth at all (43), it is found that heating above 100° does cause deterioration, and that the heated food has to be supplied in larger quantities than the raw food. For example, while wheat germ (44) heated 2 hours at 100° loses little or none of its potency, heated 40 minutes at 113° it loses one-half, and heated 2 hours at 118°–124° it may lose up to nine-tenths. These temperatures, of course, point to the safety of the water-soluble vitamine in our ordinary cooking processes, but the danger of its partial or complete destruction in commercial canning or other high pressure cooking. Both Miller (45) and Whipple (46) found that in ordinary cooking of carrots, beans, and cabbage, there was no destruction of *B* (yeast method) nor in cooking carrots at 115° for 45 minutes. Heating navy beans at 120° for 30 minutes, however, decreased their vitamine 40.6 per cent (Miller). A large part of the vitamine in ordinary cooking was found in the cooking water.

Tinned meat, Chick and Hume report, is devoid of this vitamine, a fact shown not only by their laboratory experiments, but by the repeated development of beri-beri in the British army in the Dardanelles and Mesopotamia where the diet for a time consisted only of white bread, tinned meat, and jam. The Indian soldier, on the other hand, remained immune from the beri-beri because his diet consisted chiefly of "atta," a coarsely ground wheat flour containing the germ and the aleurone layer of the grain, and also included 4 ounces daily of small lentils either whole or split (1).

The stability of *B* toward alkali seems to be uncertain, though here, too, according to Chick and Hume, the difficulties may be due to feeding such large quantities that a destruction of half or even more during the alkali treatment would not have noticeable effect on the animals. Sullivan and Voegtlin (47) of the United States Public Health Service, who observed several years ago that chickens developed polyneuritis promptly on corn bread made with soda but not on corn bread made with salt, now report polyneuritis in cats and dogs fed meat treated with sodium carbonate till distinctly alkaline and then heated at 120° for three hours; meat heated without the alkali was still a fairly satisfactory food. Rats, however, that were fed the alkali meat lived for at least 110 days—a fact quoted by Osborne and Wakeman (48) to show, with experiments of their own, that the vitamine is more resistant to alkali than generally supposed. Daniels and McClurg (49) feeding generous quantities of navy beans, soy beans, and cabbage, found the diets entirely satisfactory even when cooked for an hour and a half with 5 per cent sodium bicarbonate. McCollum and Simmonds (50) find the *B* in wheat germ destroyed by boiling with 0.28 per cent sodium hydroxide for an hour, but Osborne and Wakeman (48) find it undiminished in yeast digested with tenth normal sodium hydroxide (slightly stronger than McCollum's) for twenty-two and a half hours, and then heated for two hours. It may be that previous extraction with ether or other removal of the fat lessens the stability of *B* (26).

Water-soluble B and Appetite. Very strikingly, a relation seems to exist between the presence of the water-soluble vitamine in the diet and the amount of food eaten. Karr (51) (52), in Mendel's laboratory, gave dogs a liberal ration, satisfactory in every respect except its lack of *B*. He found that their food consumption, normally large the first day, gradually fell off, sometimes till they refused to eat at all. Then he added the vitamine, separate from the food so that it could not have

affected the palatability, and their food intake began to go up at once. The "appetite-provoking substance" was found in brewery yeast, baker's yeast, canned tomatoes, and milk. From 0.5–1.5 gm. brewery yeast daily were required to bring the appetite back to normal, about 3 gm. baker's yeast, 50 cc. to 150 cc. milk, or 100 cc. to 200 cc. tomato.

Certain animals which, unlike most, continued to eat their food for a longer time without the vitamine developed characteristic polyneuritic symptoms.

Contrary to some of the conclusions with McCarrison's pigeons and monkeys discussed below, Karr's dogs showed no diminished coefficient of digestibility for the protein they did eat without the vitamine, nor any notable irregularity in the intermediary protein metabolism. As also with Lumière's pigeons (53) the question seems to be purely one of appetite. It "thus remains among the secrets which the physiology of nutrition has still to reveal."

Some Results of Lack of B. What happens in the body as a result of lack of the water-soluble *B* in the diet? McCarrison (54), working in India⁴ has made striking advances in answering this question. He has observed changes during life and loss in weight of organs after death in a large group of pigeons made polyneuritic by a diet of polished rice and later a group fed polished rice, butter fat to supply *A*, and onions for *C*.⁵ There was little difference between the group undergoing *B* starvation and that with general vitamine starvation. The body temperature of the pigeons gradually fell from a normal average of 107°F. to 98° or 99°F., showing a marked slowing up of metabolic processes. Digestive processes were greatly impaired; the starch was largely excreted unchanged. The different organs of the body lost weight strikingly (all except the adrenals which gained); thymus most, then, in order, testicles, spleen, ovary, pancreas, heart, liver, kidneys, stomach, thyroid, brain. The testicles lost 93 per cent and the ovaries 69 per cent of the original weight. "Perhaps one of the most remarkable results of a dietary deficient in so-called anti-neuritic vitamine is the constant and very pronounced atrophy of the testicles in males

⁴ A fairly full abstract of the first of these papers is given in *British Medical Journal* 1, 177, (Feb.), 1919, and a briefer reference to it by Le Mer in *Jour. Amer. Med. Assoc.* 73, 1381, (Nov. 1), 1919.

⁵ Observe apparent contradiction here with Osborne and Mendel's work with rats, proving *B* in onions. McCarrison's pigeons became polyneuritic even more promptly in the butter-fat-onion group than on polished rice alone.

and the similar but less pronounced atrophy of the ovary in females." Other investigators have noted similar results of vitamine starvation. Drummond found that when male rats after as short a time as 14 days on a diet adequate except for *B* were mated with females on an adequate diet no pregnancies resulted.

Such degrees of atrophy in the human subject would result in sterility in males and in amenorrhoea and sterility in females. Human observations are not lacking. McCarrison quotes Vedder as saying that beri-beri women cease to menstruate. "War amenorrhoea" (abnormal cessation of menstruation) is referred to in many recent German periodicals with alarm, attributing it in part at least to defective nutrition. In the Charité-Frauenklinik in Berlin it has been seven times more frequent than before the war.⁶ In Belgium, too, many cases have been observed (55). The experience of Benedict's young men is also striking (56). These difficulties may, of course, be due to general food lack rather than to the specific deficiency in *B*.

Miscellaneous infections were very frequent among McCarrison's pigeons. The whole body was liable to be overcome by a rank growth of bacteria. There may be some similarity between this observation and the great increase in tuberculosis abroad during the war.

McCarrison's more recent work has included experiments with monkeys and with guinea pigs, as well as with many more pigeons, and with a variety of deficient diets. The results with the monkeys conform in a general way to those with the pigeons, except that the reproductive organs especially, and a few other parts, are less affected in the monkeys by lack of the antineuritic vitamine. He observes particularly the many changes in the gastro-intestinal tract of his monkeys. The mucous membrane became inflamed for its entire length, the muscular control was impaired so that the stomach was dilated and ballooning of areas of the small and large bowel took place, and the glands secreting the digestive juices were markedly affected. He also finds that a diet deficient in *B* but well balanced in its protein and carbohydrate constituents has a much less harmful effect than one containing low protein and excessive carbohydrate and fat. This may explain Karr's more satisfactory results with his dogs.

McCarrison's statement of some of the "chief clinical evidences of disease" observed in his monkeys on diets without the anti-neuritic

⁶ *Brit. Med. Jour.*, Dec. 1, 1917, p. 734.

vitamine may well be partially quoted: progressive anemia, asthenia, loss of appetite, diarrhea, dysentery, headache, sub-normal temperature, enfeebled heart action. Nervous symptoms appeared later. "It is thought that the findings recorded in this paper may afford some explanation of the genesis of that great mass of ill-defined gastro-intestinal disorder and vague ill-health which forms so high a proportion of human ailments at the present day."

Infant Nutrition and Water-soluble B. From the point of view of immediate application to human welfare in this country, possibly the most satisfying experiments with the water-soluble vitamine are those which show its very favorable influence on the growth of malnourished infants. Byfield and Daniels (57), in the Iowa Child Welfare Research Station, report their work with 7 such infants who were not growing on the usual satisfactory hospital dose of orange juice—15 cc. daily. They increased the quantity to 45 cc. and all the babies began to gain. The gain ceased when only 15 cc. was given for about 10 days, and started up again when the larger quantity was restored. It was the antineuritic vitamine in the extra orange juice that was effective, not the antiscorbutic (see below), for some orange juice, shaken with kaolin which removes the antineuritic but not the antiscorbutic vitamine, and then filtered, did not cause the growth in the babies. Also in previous work the authors had obtained good growth in babies given wheat embryo extract.

Eddy (58) also, somewhat earlier, in New York, has reported similar results on feeding extra water-soluble *B*, in part prepared from the navy bean. One of his infants gained 0.84 ounce per day for 32 days with the added vitamine, as compared with 0.47 ounce per day during the 17 days preceding. There was already much more vitamine in the food than in the added extract. The author suggested that "this result may be due to the fact that the child could utilize the extracted vitamine when it could not utilize the vitamine in the diet."

WATER-SOLUBLE C

The third vitamine now recognized is the antiscorbutic. The earlier conclusion (59) that scurvy is not a deficiency disease, but is due to constipation, has been abandoned. Its adoption probably arose from having a non-controlled milk intake in the diet of the experimental animals and therefore a slight and variable amount of the vitamine.

the quantity of *A* in the feed of the cow and upon the manipulation of the butter itself. (See below in connection with stability.) Whale oil is another fairly rich source, though not so rich as butter. Drummond (9), with carefully standardized methods of feeding young rats and noting the change of weight, if any, week by week, found that he obtained about the same satisfactory growth when the fat-soluble *A* came wholly from 8 per cent butter fat or 20 per cent whale oil. Fish oils in general and fat fish may serve as valuable sources. Oleo oil, as shown by Osborne and Mendel several years ago, contains a fair amount of it, and so do oleomargarines made from oleo oil, but not the nut margarines made wholly from vegetable oils (10). However, as Steenbock (8) says, "Oleomargarines . . . are not to be considered in the same class as good butter in providing the organism with the fat-soluble vitamine." Pig's liver oil, and liver tissue, kidney tissue, probably glandular organs in general (11) give fair supplies—that is, that portion of the animal of which we eat little is far superior to the skeleton muscle of which we eat much.

Contrary to the usually accepted idea in regard to the lack of *A* in lard and in vegetable oils, Daniels and Loughlin (12) have found very distinct amounts in lard and cottonseed oil, shown only when large quantities were fed. Their rats grew as well when the diet contained 28 per cent of these fats as with 5 per cent butter fat and 23 per cent other fat. The authors do not give information in regard to the color or the commercial treatment of their fats in preparation for the market. Drummond and Coward (13) have also reported the presence of *A* in a number of vegetable oils. Palm oil contains as much *A* as one third of that present in butter, while maize oil and cotton-seed oil contain still less.

But "the fat-soluble vitamine need not be sought solely in foods known to be rich in fats" (14). Many vegetables furnish rich sources of it, and their value is being more and more studied and appreciated. Dried spinach, alfalfa, clover, timothy, and tomato promote growth of rats just as satisfactorily as an equal small quantity of butter fat; possibly they are even better. Cabbage is not so good; potato contains only a small quantity of this vitamine. The dried green vegetables when extracted with U. S. P. ether gave a green oil equal to about 3 per cent of the dried plant, and as minute an amount as about a drop of this "spinach oil" or other oil fed daily restored normal growth in rats.

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WATER-SOLUBLE B

Methods of Study. For studying the water-soluble vitamine, observations have been continued on the growth of rats and on the onset of polyneuritis in pigeons and chickens. While it is not definitely proved that these two methods deal with one and the same substance, the assumption that such is the case is usually made. During the past year, however, evidence has increased that two distinct substances may be involved, for a sample of unmilled rice heated to 120° for 6 hours had ceased to be satisfactory for preventing polyneuritis in pigeons but was still satisfactory as the only source of the water-soluble vitamine for growing rats (26).

A new and most promising method of research was developed last year by Williams (27) in the laboratory of Physiological Chemistry of the University of Chicago. Yeast, he believes, unlike the higher plants, cannot grow without this vitamine. Therefore if drops of different solutions, each containing a single yeast cell, are observed microscopically at intervals of a few hours, the growth of the yeast and the number of cells into which it has multiplied will show, not only whether the solutions contain the vitamine, but the relative quantities present. This method is of course much simpler and quicker than the usual feeding experiment.

The method since its introduction has been modified in various ways (28) (29), but also it has been seriously criticized, especially from McCollum's laboratory (30). Not only vitamine extracts but various pure chemicals such as glucose and amino acids stimulate yeast growth. The method, the investigators conclude, is therefore "complicated by so many disturbing factors as to make it of little if any value." Williams and the others who have worked with the method have not yet had opportunity to reply to this criticism.

Occurrence. Water-soluble B occurs less in animal than in plant foods. Milk is by no means so rich in it as was formerly thought. Osborne and Mendel (31) found it necessary to give their rats at least 16 cc. per day for normal growth. They discuss but do not explain to their satisfaction the much-quoted results of Hopkins who secured remarkable growth on adding as little as 2 cc. of milk to a diet on which his rats were failing. They warn against a diet of white bread and only a little milk, or against feeding infants a top milk, water, sugar mixture. Pasteurization does not lower the quantity of the water-soluble vitamine

in milk (32), and condensed and evaporated milk also furnish a satisfactory source. The deficiency sometimes observed in slowly or highly heated milk is apparently due to the precipitation of part of the calcium, rather than the destruction of this vitamine (33). Unlike the case with the two other vitamines, the summer and winter differences in the diet of the cow are not of influence (32).

Muscle tissue also is low in this vitamine, but various other animal tissues—heart, kidney, brain, and liver—are satisfactory sources of supply, a distribution similar to that of *A* (11) though somewhat wider.

An especially satisfactory statement of the occurrence of this vitamine in plants, as so far known, is given by Osborne and Mendel (34) in the *Journal of Biological Chemistry* for August, 1919. They list a wide variety of plant foods, including among others seeds of cereals and a number of legumes, spinach, cabbage, potatoes, and carrots; and they add to the list, from their own recent experiments, the usual edible portion of the onion, turnip, beet (leaves, stem, and root), and tomato. Potato peel is no better than potato. Immature alfalfa, clover, and timothy show decided advantages over the mature. This variation with age may apply to plant foods in general and may mean a real nutritive superiority for young vegetables.

Fruits, too, are rich in *B* (35). Orange, lemon, and grape fruit juices as the sole source promote growth at about the same rate as an equal volume of milk, and dried orange juice is as satisfactory as fresh. The inner peel of orange also contains it. Apples, pears, and bottled grape juice³ are not so rich as the citrus fruits. Nuts have an abundant supply (36). A goodly number of our common vegetables and fruits have thus been tested for *B* and so far without exception everyone has been found to contain it—a much wider distribution than that of *A*.

The part of the cereal that is rich in it is not the bran, as usually supposed, so much as the germ, which is often removed with the bran, e.g., in rice polishings. Commercial wheat bran contains more or less vitamine, according to the amount of the germ associated with it. Of one sample tested by Chick and Hume (37) five and a half times as much had to be used to cure polyneuritic pigeons as was necessary when the germ was used. Our commercial bran is especially thoroughly "skinned" when it comes from large well-equipped modern flour mills (38), and therefore is of little value to correct the deficiency of white flour

³ Welch's grape juice.

and bread. Even the yeast or the milk used in the white bread does not prevent polyneuritis in pigeons (39), though the yeast delays the period of its onset. On the other hand, bread made from real graham flour is adequate. Of course these facts have important bearing upon the kind of flour most desirable from the standpoint of national nutrition. Voegtlin and Myers in a later paper (40) say, "We believe that a product which does not contain any bran but does include the germ would not possess these objectionable features [of causing intestinal disturbances], would, at the same time be more nutritious, and would reduce greatly the possibility of vitamine deficiency in the modern mixed diet."

Yeast (41) is distinctly the richest known source of the water-soluble vitamine, being four times as efficient as dried spinach which ranks next among a group studied quantitatively. Only half as rich as spinach are whole wheat, soy beans, dried eggs, milk solids. Cabbage, too, is not so satisfactory as spinach. Abderhalden (42) has succeeded in protecting pigeons, fed on polished rice, against polyneuritis by such minute daily amounts of yeast as 0.05–0.01 gram.

Stability. Water-soluble *B* is probably not so stable toward heat as we formerly supposed. McCollum's beans and peas (16), which, although heated for one and a quarter hours in an autoclave, still supplied all the *B* that the rat needed, were fed in large quantities, often as much as 25 per cent of the diet. When the food supplying *B* is fed in the smallest amount which will produce growth at all (43), it is found that heating above 100° does cause deterioration, and that the heated food has to be supplied in larger quantities than the raw food. For example, while wheat germ (44) heated 2 hours at 100° loses little or none of its potency, heated 40 minutes at 113° it loses one-half, and heated 2 hours at 118°–124° it may lose up to nine-tenths. These temperatures, of course, point to the safety of the water-soluble vitamine in our ordinary cooking processes, but the danger of its partial or complete destruction in commercial canning or other high pressure cooking. Both Miller (45) and Whipple (46) found that in ordinary cooking of carrots, beans, and cabbage, there was no destruction of *B* (yeast method) nor in cooking carrots at 115° for 45 minutes. Heating navy beans at 120° for 30 minutes, however, decreased their vitamine 40.6 per cent (Miller). A large part of the vitamine in ordinary cooking was found in the cooking water.

Tinned meat, Chick and Hume report, is devoid of this vitamine, a fact shown not only by their laboratory experiments, but by the repeated development of beri-beri in the British army in the Dardanelles and Mesopotamia where the diet for a time consisted only of white bread, tinned meat, and jam. The Indian soldier, on the other hand, remained immune from the beri-beri because his diet consisted chiefly of "atta," a coarsely ground wheat flour containing the germ and the aleurone layer of the grain, and also included 4 ounces daily of small lentils either whole or split (1).

The stability of *B* toward alkali seems to be uncertain, though here, too, according to Chick and Hume, the difficulties may be due to feeding such large quantities that a destruction of half or even more during the alkali treatment would not have noticeable effect on the animals. Sullivan and Voegtlin (47) of the United States Public Health Service, who observed several years ago that chickens developed polyneuritis promptly on corn bread made with soda but not on corn bread made with salt, now report polyneuritis in cats and dogs fed meat treated with sodium carbonate till distinctly alkaline and then heated at 120° for three hours; meat heated without the alkali was still a fairly satisfactory food. Rats, however, that were fed the alkali meat lived for at least 110 days—a fact quoted by Osborne and Wakeman (48) to show, with experiments of their own, that the vitamine is more resistant to alkali than generally supposed. Daniels and McClurg (49) feeding generous quantities of navy beans, soy beans, and cabbage, found the diets entirely satisfactory even when cooked for an hour and a half with 5 per cent sodium bicarbonate. McCollum and Simmonds (50) find the *B* in wheat germ destroyed by boiling with 0.28 per cent sodium hydroxide for an hour, but Osborne and Wakeman (48) find it undiminished in yeast digested with tenth normal sodium hydroxide (slightly stronger than McCollum's) for twenty-two and a half hours, and then heated for two hours. It may be that previous extraction with ether or other removal of the fat lessens the stability of *B* (26).

Water-soluble B and Appetite. Very strikingly, a relation seems to exist between the presence of the water-soluble vitamine in the diet and the amount of food eaten. Karr (51) (52), in Mendel's laboratory, gave dogs a liberal ration, satisfactory in every respect except its lack of *B*. He found that their food consumption, normally large the first day, gradually fell off, sometimes till they refused to eat at all. Then he added the vitamine, separate from the food so that it could not have

affected the palatability, and their food intake began to go up at once. The "appetite-provoking substance" was found in brewery yeast, baker's yeast, canned tomatoes, and milk. From 0.5–1.5 gm. brewery yeast daily were required to bring the appetite back to normal, about 3 gm. baker's yeast, 50 cc. to 150 cc. milk, or 100 cc. to 200 cc. tomato.

Certain animals which, unlike most, continued to eat their food for a longer time without the vitamine developed characteristic polyneuritic symptoms.

Contrary to some of the conclusions with McCarrison's pigeons and monkeys discussed below, Karr's dogs showed no diminished coefficient of digestibility for the protein they did eat without the vitamine, nor any notable irregularity in the intermediary protein metabolism. As also with Lumière's pigeons (53) the question seems to be purely one of appetite. It "thus remains among the secrets which the physiology of nutrition has still to reveal."

Some Results of Lack of B. What happens in the body as a result of lack of the water-soluble *B* in the diet? McCarrison (54), working in India⁴ has made striking advances in answering this question. He has observed changes during life and loss in weight of organs after death in a large group of pigeons made polyneuritic by a diet of polished rice and later a group fed polished rice, butter fat to supply *A*, and onions for *C*.⁵ There was little difference between the group undergoing *B* starvation and that with general vitamine starvation. The body temperature of the pigeons gradually fell from a normal average of 107°F. to 98° or 99°F., showing a marked slowing up of metabolic processes. Digestive processes were greatly impaired; the starch was largely excreted unchanged. The different organs of the body lost weight strikingly (all except the adrenals which gained); thymus most, then, in order, testicles, spleen, ovary, pancreas, heart, liver, kidneys, stomach, thyroid, brain. The testicles lost 93 per cent and the ovaries 69 per cent of the original weight. "Perhaps one of the most remarkable results of a dietary deficient in so-called anti-neuritic vitamine is the constant and very pronounced atrophy of the testicles in males

⁴ A fairly full abstract of the first of these papers is given in *British Medical Journal* 1, 177, (Feb.), 1919, and a briefer reference to it by Le Mer in *Jour. Amer. Med. Assoc.* 73, 1381, (Nov. 1), 1919.

⁵ Observe apparent contradiction here with Osborne and Mendel's work with rats, proving *B* in onions. McCarrison's pigeons became polyneuritic even more promptly in the butter-fat-onion group than on polished rice alone.

and the similar but less pronounced atrophy of the ovary in females." Other investigators have noted similar results of vitamin starvation. Drummond found that when male rats after as short a time as 14 days on a diet adequate except for *B* were mated with females on an adequate diet no pregnancies resulted.

Such degrees of atrophy in the human subject would result in sterility in males and in amenorrhoea and sterility in females. Human observations are not lacking. McCarrison quotes Vedder as saying that beri-beri women cease to menstruate. "War amenorrhoea" (abnormal cessation of menstruation) is referred to in many recent German periodicals with alarm, attributing it in part at least to defective nutrition. In the Charité-Frauenklinik in Berlin it has been seven times more frequent than before the war.⁶ In Belgium, too, many cases have been observed (55). The experience of Benedict's young men is also striking (56). These difficulties may, of course, be due to general food lack rather than to the specific deficiency in *B*.

Miscellaneous infections were very frequent among McCarrison's pigeons. The whole body was liable to be overcome by a rank growth of bacteria. There may be some similarity between this observation and the great increase in tuberculosis abroad during the war.

McCarrison's more recent work has included experiments with monkeys and with guinea pigs, as well as with many more pigeons, and with a variety of deficient diets. The results with the monkeys conform in a general way to those with the pigeons, except that the reproductive organs especially, and a few other parts, are less affected in the monkeys by lack of the antineuritic vitamin. He observes particularly the many changes in the gastro-intestinal tract of his monkeys. The mucous membrane became inflamed for its entire length, the muscular control was impaired so that the stomach was dilated and ballooning of areas of the small and large bowel took place, and the glands secreting the digestive juices were markedly affected. He also finds that a diet deficient in *B* but well balanced in its protein and carbohydrate constituents has a much less harmful effect than one containing low protein and excessive carbohydrate and fat. This may explain Karr's more satisfactory results with his dogs.

McCarrison's statement of some of the "chief clinical evidences of disease" observed in his monkeys on diets without the anti-neuritic

⁶ *Brit. Med. Jour.*, Dec. 1, 1917, p. 734.

vitamine may well be partially quoted: progressive anemia, asthenia, loss of appetite, diarrhea, dysentery, headache, sub-normal temperature, enfeebled heart action. Nervous symptoms appeared later. "It is thought that the findings recorded in this paper may afford some explanation of the genesis of that great mass of ill-defined gastro-intestinal disorder and vague ill-health which forms so high a proportion of human ailments at the present day."

Infant Nutrition and Water-soluble B. From the point of view of immediate application to human welfare in this country, possibly the most satisfying experiments with the water-soluble vitamine are those which show its very favorable influence on the growth of malnourished infants. Byfield and Daniels (57), in the Iowa Child Welfare Research Station, report their work with 7 such infants who were not growing on the usual satisfactory hospital dose of orange juice—15 cc. daily. They increased the quantity to 45 cc. and all the babies began to gain. The gain ceased when only 15 cc. was given for about 10 days, and started up again when the larger quantity was restored. It was the antineuritic vitamine in the extra orange juice that was effective, not the antiscorbutic (see below), for some orange juice, shaken with kaolin which removes the antineuritic but not the antiscorbutic vitamine, and then filtered, did not cause the growth in the babies. Also in previous work the authors had obtained good growth in babies given wheat embryo extract.

Eddy (58) also, somewhat earlier, in New York, has reported similar results on feeding extra water-soluble *B*, in part prepared from the navy bean. One of his infants gained 0.84 ounce per day for 32 days with the added vitamine, as compared with 0.47 ounce per day during the 17 days preceding. There was already much more vitamine in the food than in the added extract. The author suggested that "this result may be due to the fact that the child could utilize the extracted vitamine when it could not utilize the vitamine in the diet."

WATER-SOLUBLE C

The third vitamine now recognized is the antiscorbutic. The earlier conclusion (59) that scurvy is not a deficiency disease, but is due to constipation, has been abandoned. Its adoption probably arose from having a non-controlled milk intake in the diet of the experimental animals and therefore a slight and variable amount of the vitamine.

Effect of Lack of C in the Diet. With this vitamine even more than with the others, human experience as well as laboratory experiments must be considered—both infantile scurvy and adult scurvy. Mild cases of the latter may merely manifest themselves in languor and depression, and severe cases in looseness and final falling out of the teeth, soreness and hemorrhages of the gums, swelling of the joints, great weakness, and finally death. Degenerative tooth changes are particularly characteristic of scurvy (60). They have been described at length in the guinea pig and are said to be identical in the human subject. Sometimes the guinea-pig conditions, when on a diet very low in green foods, closely simulate pyorrhea in human beings and at least the beginning of dental caries (61) (62).

Methods of Study. The laboratory animal most used is the guinea pig, and to a lesser extent the monkey, for rats, while according to some investigators they thrive better with the antiscorbutic than without it (63), do not have scurvy. The usual experimental method, carefully worked out, is to note the smallest quantity of experimental food which will prevent the onset of scurvy in the guinea pig when added to a basal "scorbutic diet" such as oats, hay, and autoclaved milk.

Among the chief workers on the antiscorbutic vitamine are Hess in New York, whose book, *Scurvy Past and Present*, forms a very valuable addition to the literature of scurvy in 1920 (64); Givens in New Haven and Rochester; and the group, largely women, at the Lister Institute of Preventive Medicine, London—Harriette Chick, E. Margaret Hume, and others. Chick and Dalyell spent 9 months in Vienna in 1919–20, observing and working among the many children ill with diseases resulting from inadequate diet. A partial report of their experience was given in the Discussion on the Present Position of Vitamines in Clinical Medicine, at last summer's meeting of the British Medical Association (1). Earlier, the Lister Institute work was made the basis of the recommendations of the Food (War) Committee of the Royal Society on the prevention of scurvy in the army and navy (65). Three editorials (66) in the *Journal of the American Medical Association* summarize much of their work as well as that of others.

Vegetables and Fruit as Sources of C. "The vitamine is present in living vegetable and animal tissues, in largest amounts in fresh fruits and green vegetables, to a less extent in root vegetables and tubers. It is present in small amount in fresh meat and milk, and has not been detected in yeast, fats, cereals, pulses" (67). It is sensitive to

high temperature and may be destroyed "when the living tissue is disorganized."

Orange juice has been generally recognized as one of the best antiscorbutics; grapes are only about one tenth as satisfactory. Orange peel extract is also of value. Lime juice is poor. The "lime juice" of the eighteenth and early nineteenth century which was responsible for the disappearance of scurvy from the British navy was really lemon juice from the Mediterranean countries. In 1875 certain vessels on polar exploration changed from the old "lime juice" to the true west Indian lime, and scurvy broke out again with great severity. The Lister Institute work has shown that fresh lemon juice has about four times the value of fresh lime juice as an antiscorbutic and that preserved lime juice is almost valueless.

Of the vegetables (68), often more readily available than the fruit and cheaper, raw cabbage is even better than orange juice, and the raw juices of swede (a kind of turnip), beetroot, and carrots are of service, as is also raw or cooked rhubarb (69). Dalyell (1) shows charts with marked improvement in weight on giving a 6 months old, artificially fed child, in Vienna, 10 grams raw turnip juice and 10 grams butter; and, in another case, on adding raw turnip juice and butter to the nursing mother's diet. Cooking (87), however, in most cases diminishes or entirely destroys the efficiency of the vegetables except when they (carrots) are young (Hess). Cabbage (70) cooked for one hour at 60° or twenty minutes at 90° to 100° lost about 70 per cent of its antiscorbutic value, and for one hour at 90° more than 90 per cent. On repeating part of this work 2 years later (71) similar results were obtained with cabbage, and swede juice was found to be somewhat more stable. Long cooked or canned vegetables are thus of no value as antiscorbutics, a fact borne out by human experience for many years. Canned tomatoes (87) are an exception, possibly because of their acid and original richness in the substance. They have been successfully used as a substitute for the more expensive orange juice to prevent scurvy in infants receiving pasteurized milk. Hess (64) considers canned tomato the most serviceable antiscorbutic for artificially fed infants, regarding it as "a palatable solution of the 3 vitamins." He recommends feeding it at the rate of about 30 g. per day.

Potatoes contain a fair amount of the vitamin if not cooked too long (72). For instance, guinea pigs on 10 grams raw potatoes or the same quantity cooked at 100° for 15 minutes were free from scurvy,

but on potatoes cooked for 1 hour they developed it. As the only antiscorbutic for human beings the ration must be as much as fourteen ounces per man per day (65). In Glasgow (73), recently, a poor law hospital which had apparently been depending largely on potatoes and had been near the danger line with a normal of three cases of scurvy a year, developed fifty cases when the lack of potatoes in the fall and winter of 1916-17 caused the substitution of the potatoes by rice and bread. In this country, too, Hess (74) speaks of the development of scurvy in numerous institutions in the spring of 1916 after an exceptionally poor potato crop the previous year. In one there were more than twenty deaths, in another more than two hundred diagnosed cases and probably many latent cases which escaped observation.

Drying, too, may lessen the value of an antiscorbutic food (75). Dried vegetables and herbs have been tried in cases of scurvy in the army and navy with no help. Dried tomatoes, however, Givens (76) found, still retain a significant amount of the original high antiscorbutic potency. So do dried orange and lemon juice (77) (78). Commercial products are already being prepared from these fruits. Drying generally does least harm when done *quickly* at a low temperature (under diminished pressure) and when the vegetables dried are young. Quick drying at a higher temperature, however, is much better than prolonged heating at a lower temperature. It may be, as suggested by Givens and McCluggage (72), that enzyme action as well as heat is involved in the destruction of the antiscorbutic, and this of course could take place at the maximum rate at 35-40° where some of the prolonged experimental drying has been carried on. Dried potatoes are more satisfactory as an antiscorbutic if they are baked before drying—a further indication for the enzyme idea.

Dried beans, themselves valueless, develop their vitamins on sprouting (79). The Food (War) Committee of the Royal Society recommends (65) that when other antiscorbutics are not available the beans be sprouted and the sprouts used. Their therapeutic value was strikingly shown when King's College Hospital, London, with a number of mild cases of scurvy in soldiers from Serbia, divided its patients into two groups, treating thirty in one ward with 4 ounces of fresh lemon juice daily and twenty-seven in another with 4 ounces of dried haricot beans freshly germinated. Of the patients on the lemon juice 53.4 per cent were cured within four weeks and of those on the germinated beans 70.4 per cent (80).

No more striking and terrible illustration of the lack of fresh vegetables could be expected than the experience of the Indian troops in Mesopotamia during the war (1). The supplying of fresh vegetables and fruits seemed to be impossible during a long period. As a consequence, from July 1 to December 31, 1916, 11,000 cases of scurvy occurred. British troops did not have it because they had their fresh meat which the Indian troops would not eat, and because they had arrived in the country in good condition and the Indians often on the borderland of scurvy. The measures used to meet the outbreak constituted "a remarkable innovation in the hygiene of armies" (Hess (64), p. 19), for the British government sent over a body of 256 men as "Gardener's Corps" to plant gardens and supply seeds.

Occurrence of C in Animal Foods. Milk (81) is only of moderate value as an antiscorbutic and even its moderate value varies considerably with the diet of the cow (82, 83, 84). Twenty cc. of "summer" milk when the cow is in pasture, may be better than 60 cc. "winter" milk with the cow on dry fodder. In general milk loses most of the value as an antiscorbutic when pasteurized or boiled (85), though not when quickly "scalded." Numerous observations have been made of infantile scurvy developing from use of pasteurized milk and its check by the addition of orange juice. Commercial condensed milk (86) is valueless and so, too, is dried milk unless the drying is done very quickly, e.g., for a few seconds at 116° (87). Properly prepared dried milk may actually cure infantile scurvy (Hess (64), p. 46). In this connection should be mentioned a very valuable summary—Morse's "A Résumé of the Literature of Infantile Scurvy during the Past Two Years," in the *Boston Medical and Surgical Journal* (88). An editorial in the *Journal of the American Medical Association* (89) cites numerous recent distressing cases of infantile scurvy abroad; for instance, in Prague in 1917-18 when the much desired "raw" milk was often of doubtful "rawness," oranges had disappeared from the markets since early in the war, and other fruits and even most green vegetables were difficult to obtain and usually very expensive.

Fresh meat has so little antiscorbutic value that the Royal Society (65) states that as much as two to four pounds daily are necessary if it is to be used as the chief preventive agent, and tinned meat is completely valueless. Dutcher, Pierson, and Biester (90) find practically none even in raw beef. Their laboratory experiments do not confirm Stefánsson's remarkable report (91) of his polar experiences. His habit, and that

of his party in the north, was to live almost wholly on seal meat and bear meat, using not only the muscle tissue, but liver and various other organs. Often they consumed raw frozen liver. They had no cases of scurvy on this diet. However, three men, who were separated at times from the main party and depended largely on some cached foods which they had found—flour, salt pork, butter, honey, sugar, pilot bread, preserved fruit, pemmican, meat extract, dried fruit, rice, beans, and peas—developed serious scurvy. They were promptly cured when fed meat, largely raw.

It is rather surprising that rats' livers contain the antiscorbutic vitamine, even when their diet is free from it (92). Apparently the rats, unlike most animals investigated, can synthesize the vitamine themselves and must use it in their own metabolism. Their powers of synthesis must have furnished the only source of supply to the Arctic explorer Smith who attributed his freedom from scurvy to eating the ship's rats which were of necessity on a diet very low in C.

One more human scurvy experience (93) illustrates a number of the points so far stated. A number of camps of the South African Native Labour Corps were established in France during the war. The rations consisted of 1 pound frozen or preserved meat, 8 ounces fresh vegetables, and definite quantities of mealy meal (corn) or rice, bread, coffee, sugar, salt, margarine, and tobacco. In country depots where they could pick extra fruit (apples) no scurvy occurred, but in a camp when this was impossible 40 per cent of the natives at one time showed symptoms of scurvy. The half pound of fresh vegetables probably allowed no margin for the reduction of the antiscorbutic, and yet all foods had been cooked for at least three hours. The chief part of the cure was to give lemon juice, increase the supply of vegetables, and limit their cooking to forty-five minutes. In a camp where the scurvy was most severe and lasted longest it was discovered that the instruction to shorten the cooking period had been disobeyed. The condition was soon improved when the cooking was reduced to forty minutes.

CONCLUSION

In conclusion, it is plain that remarkable as are the advances in the subject, we still have far to go for anything approaching complete knowledge. We need more *quantitative* information as to the distribution of the vitamins in foods and their resistance to all sorts of manip-

ulations—cooking, storing, aging. We lack knowledge of the quantities advisable for human beings of different ages. Finally, and most fundamentally, we yet await the isolation of the substances themselves in purity and the establishment of their chemical composition.

It is very difficult to say what is the importance to the average individual of giving thought to these three vitamins in choosing the diet. Most of us probably use milk or leaf vegetables (McCollum's "protective foods") to get an adequate supply of *A*, enough vegetables of all kinds and whole cereals to get *B*, and enough uncooked or little cooked foods for *C*. But the occasional moderately well-to-do individual with dietary idiosyncracies, many persons on very limited incomes, and many in institutions must be close to the danger line. Probably *C* with its marked unstability to heating or drying is the most often low in quantity, and *A* with its limited distribution second. It is more than probable, too, that all sorts of common languors and inefficiencies and susceptibilities to many miscellaneous infections are connected with shortage in vitamins.

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CONFERENCE OF CLOTHING SPECIALISTS

Significant in the development of extension work in the northern and western states was the meeting of clothing specialists and state leaders from twenty-six states held at Ames, Iowa, November 8 to 14. Florence E. Ward, in charge of extension work in the North and West, presided.

Clothing work as a phase of home economics extension teaching has come so rapidly into prominence within the last two or three years that at present the service claims twenty-three specialists in the northern and western states. While the standards and ultimate aims of clothing instruction may be the same in extension teaching as in resident teaching at state colleges, the methods and immediate aims in dealing with homemakers offer many new problems that call for study and analysis.

Among the high lights in the discussions were the following subjects: the value of surveys in making programs, the extent to which local leaders can effectively carry on the work, the part that records play in a clothing project, possibilities of promoting health through clothing work, the need of drill in efficient methods in garment construction, the relative importance of hat making in a clothing program, effective illustrative

material, county and state fairs as a means of promoting the work, the relationship of specialists to state and federal work, and the possibility of simplifying and strengthening monthly and annual reports.

A demonstration of a so-called style show in the form of a play was given by Ames students under the direction of the extension instructor in design to point out the possibilities of this sort of appeal for suitability and beauty in the high school girl's dress.

Of equal interest with the discussions of technical subject matter was the glimpse of the sociological value of the work revealed through the stories from far corners of the country. Adaptability to conditions is one of the prime requisites of a successful extension teacher; in fact, it would seem that there is small opportunity for her to get into the proverbial rut. As compensation for the many quick shifts in plan that must be made and the difficulties of itinerant work, there is the variety of scene, situation, people, and problems which always refreshes one's interest and gives color to the day's activity. The privilege of knowing many kinds of people and homes is offered liberally to extension workers.

As the discussion of local leaders progressed, it became apparent that the group was considering, not only a means of extending information on clothing, but also the development of leadership that would be a permanent asset to the community and to the individual.

High standards for extension work in clothing seem to be jealously guarded and, when pressure of work or a necessary decision in favor of a more important matter has caused relaxation in standards of teaching as has necessarily been the case sometimes in the pioneer stage of development, it seems always to have been with regret and with the happy conviction that the work is now reaching such a stage of development that attention can be given to perfecting methods.

The machinery offered by the farm or home bureau organization for carrying on this form of teaching is a boon to the extension instructor. Its many advantages are fully appreciated by the workers who were in the field before the development of this organization and who then realized the difficulties of following up any work that might have been begun through a talk or demonstration.

The challenge of this new field of service is winning many a strong worker.

THE HEARING ON THE HOME ECONOMICS AMENDMENT
TO THE VOCATIONAL EDUCATION ACT

REPORT OF THE LEGISLATIVE COMMITTEE OF THE AMERICAN HOME
ECONOMICS ASSOCIATION

On the evening of February 4, 1921, a hearing was held before the Committee on Education of the House of Representatives on the Home Economics Amendment to the Vocational Education Act. This bill is the first to be introduced into Congress, with reference only to home economics. It provides an opportunity for the development of a plan for homemaking education adequate to the needs of the women in every locality throughout the country, and authorizes an appropriation for vocational home economics equal to that amount appropriated for agriculture and trade and industrial education.

The caucus room of the House Office Building, where the hearing was held, was well filled with representatives of organizations whose interests are closely allied with home economics, and with individuals interested in the prospect of better training for girls and women in homemaking.

The American Home Economics Association has sponsored the bill from the beginning. With the aid of other women's organizations, the Association succeeded in having this amendment presented to Congress, and it is therefore with a feeling of pardonable pride that we report the congressional hearing on the bill.

Representative Fess, chairman of the Committee on Education, presided. Louise Stanley, chairman of the Legislative Committee of the American Home Economics Association, in behalf of the Association urgently recommended the passage of the bill, outlining the need for home economics education, giving the present provisions for Federal aid, and pointing out the advantages to be derived from the adoption of this amendment.

Miss Stanley's remarks may be summarized as follows:

The new bill provides an appropriation of a half million dollars for the first year, to be used for homemaking education, with an increase of \$250,000 each year for the next 10 years, after which three million dollars will be available annually for this purpose. This money is not to be apportioned to the states in the same manner in which funds are now available for home economics education under the Vocational Education Act. The funds are to be allotted upon the basis of total

population, rather than upon the basis of urban population as is now the case. The money is to be expended for the salaries of teachers, supervisors, and directors of home economics; one-third of the money given for teachers' salaries must be used in part-time or evening classes for workers over 14 years of age who have entered upon employment.

In the Vocational Education Act, no definite appropriation is made for home economics; the act permits the expenditure of not more than 20 per cent of the fund appropriated for the salaries of teachers of trade, home economics, and industrial subjects, for the salaries of home economics teachers. The amount available for the salaries of teachers of home economics is allotted to the states in the proportion that their total urban population bears to the total urban population of the United States. Homemaking is a business of the rural districts as well as of the urban centers; and the 1920 census reports 32 states with a larger rural than urban population; the inference may easily be seen. There is no appropriation for the salaries of supervisors, except as supervision may be included in the plans for teacher training.

A great handicap to the program of homemaking training is found in the inclusion of home economics in that portion of the law which sets up standards for trade and industrial education. Preparation for homemaking cannot be interpreted in terms of unit trade training. Homemaking is a complex job. The efficient homemaker must be skillful in a number of simple occupations. She must understand the selection and preparation of food; she must know how to buy and repair clothing; she must be able to rear and care for children. The family expenditures, the health of her family, the standard of living in the home, and the training of the children are among her responsibilities. She is the educational manager, the health and welfare manager, and the social manager of the family group. Difficulties have therefore been encountered in the interpretation of the present law.

The need for home economics may be seen in the small percentage of the women managing the twenty million homes in the United States who have had training for homemaking. More than half of the fifty million girls and women reported by the census of 1920 are over twenty years of age; 80 per cent of these are married, and it is safe to assume that as large a proportion will marry. The chief occupation of these girls will be homemaking, and it is wise to teach the fundamentals of homemaking to all, since there are few women, whether in business or at home, who do not have some share in home duties.

The product of the home is the child. As there is no other productive enterprise that yields so valuable a product, it is important that adequate training be given those responsible for the bearing and rearing of children.

Home training is no longer a sufficient education for homemaking. In many homes there is a lack of interest or time on the part of mother or daughter, and the changing conditions of homes do not offer the old-time standards and opportunities for homemaking; these things, together with the fact that a large number of girls are employed and have no home advantages, emphasize the need for home economics courses in the schools.

Steady progress has been made in vocational training in home economics under the Vocational Education Act. In 1917, when this act was passed, only three states had laws specifically providing for vocational training in home economics. In 1919-1920, forty-four states had used funds available for the salaries of home economics teachers; two states had no available funds for home economics because the salaries of trade and industrial teachers had absorbed the entire amount. One of the largest factors in this progress of vocational training in homemaking has been the supervisor. In 1917 there were only four state supervisors; there are now forty-one full-time and twenty part-time supervisors. Every state has now some plan for supervision.

No provision is made in this amendment for teacher training; none is necessary, because the original bill provides for home economics to share in the teacher-training fund to the same extent as agriculture and trade industry. Providing the funds for the training of teachers but failing to make definite appropriation for the salaries of these teachers has created a rather anomalous situation which is not conducive to the development of vocational schools in the states, as vocational teachers are being trained who cannot be used by the states through lack of funds.

Miss Stanley made a strong plea for the adoption of this amendment on the grounds of the numbers to be benefited and the importance of the work. The American Home Economics Association, speaking for the large army of homemakers and for the potential homemakers who deserve this training for a vocation fundamental to the welfare of our national life, sees in the passage of this bill an occasion to recognize their demands and, in a measure, to equalize opportunities for the training of men and women. The fact that every organization in the country

devoted to women's interests has a home economics and a child welfare committee is sufficient proof that the women of America believe in training in homemaking. The schools have registered their approval by accepting it as part of the curriculum, and the economic world is turning to it as an effective means of eliminating waste. The National Government has recognized the vocation of homemaking as deserving of training, but has in the Vocational Education Act limited this training by an inadequate appropriation. It now remains to provide the means by which this training can be given in the states.

Mrs. Maud Wood Park, chairman of the National League of Women Voters, based her argument upon the desire of the league for equalization of opportunities for girls and boys, which would result, in this instance, from the equal appropriation provided in this bill. The development of an effective educational system was one of the chief interests of women in desiring the vote. Appropriations for all educational purposes have been insufficient. Charts prepared by the United States Bureau of Standards giving the distribution of government appropriations for the year ending June 30, 1920, were used to illustrate the meager appropriation for educational purposes. Of the five and a half billion dollars appropriated, research, education, and development received only one per cent. Of this one per cent only 13.5 per cent is given for education. Vocational education received approximately 40 per cent of the amount available for education, and home economics education received $\frac{1}{10}$ of the amount provided for vocational education, or $\frac{1}{100}$ of the total appropriation for all educational purposes. Mrs. Wood referred to the fact that women voters are expecting the fulfillment of campaign promises in regard to the advancement of vocational training for women, since both Republicans and Democrats incorporated definite statements as to such provisions in their party platforms.

The need for systematic home economics education in rural districts is keenly felt by all interested in agricultural development. Mrs. Nellie E. Blakeman, speaking for the National Grange, urged this bill as one remedy for the limited opportunities now existing in rural districts for training girls. Six million boys and girls are now taught in one-room schoolhouses. The need for better homes exists as the need for better schools, and training for homemaking as provided in this bill was earnestly recommended.

Dean A. R. Mann of the College of Agriculture at Cornell University, who represented the Land Grant College Association, said that the lan-

guage of the present vocational education act is permissive in dealing with home economics training while it is specific towards agricultural and trade and industrial education. He said that Land Grant College extension workers believe that there is a definite need for this training in home economics, the opportunities of which will be equalized in rural and urban communities under this amendment. To be placed by the present law under the same conditions of development as trade and industrial training is a distinct drawback to home economics education, as it is clearly seen that its technique needs an independent administration.

Definite needs told by those in contact with the work itself, often speak louder than any other arguments. Edna White, speaking for the Ohio State Board for Vocational Education, said that, while her state has received the fourth largest allotment of Federal funds for home economics, the lack of money has limited the development of this work, and a large number of applications are on file awaiting this additional appropriation. This appeal from schools and communities feeling the need for home economics education for their girls and women indicates the necessity for an increase in amounts available for this work.

The million and a half women organized in women's clubs in every state and territory of the United States, and in many cities and communities of every state, sent their endorsement of this bill. Lillian Williamson, representing the General Federation of Women's Clubs, stated that the question had been studied in the different clubs and the Federation had agreed to recommend the passage of the home economics bill because they "honestly considered it worth while." The right kind of food and the proper care of children are only two of the needs demanding better home training for women and girls. Changing conditions in living have done away with the passing down from mother to daughter many of the household traditions, and this instruction must be supplied in the school. Home economics training educates homemakers along broad lines of citizenship.

Mrs. Arthur G. Watkins presented the endorsement of the National Congress of Mothers and Parent-Teachers' Association, Mrs. Ellis A. Yost that of the Woman's Christian Temperance Union, and Mrs. Robert Wiles spoke for the Daughters of the American Revolution. In the name of the Association of Collegiate Alumnae, Mrs. Raymond B. Morgan urged the passage of the bill for the reason that homemaking education should be available for every girl. Matilda J. McKeown of the

Home Economics Association of Greater New York told of the need in her state for such opportunities as would be provided through this amendment. Agnes Ellen Harris and Helen Atwater, both of the States Relations Service of the Department of Agriculture, in reply to requests for their opinions from the congressional committee, strongly recommended the bill.

The hearing on this bill constitutes a significant occasion, not only because it was without precedent that a committee of the nation's lawmakers should give their undivided attention to the subject of training homemakers, but also for the reason that this homemaking training was recognized as touching so many interests organized primarily for work outside the home. Expression from committee members as to a favorable report of the bill was unanimous. We feel greatly encouraged by the progress made yet much remains to be done. Women interested in the advancement of home economics education must continue to work if they wish Congress to act upon the bill early in the next session. That all women really want the opportunities provided in this amendment to be available for girls and women, and that the sum asked is a legitimate amount to carry on the work adequately, are the two facts now to be impressed. Let all home economics workers and all others interested be "up and doing" that the day may not be far distant when homemaking training will take the place it deserves in vocational education.

FOR THE HOMEMAKER

TEA¹

SUSANNAH USHER

Our housekeepers are not usually discriminating buyers of tea. This is due partly to the fact that when people become accustomed to the flavor of one kind of tea, they will not accept any other, even one of a superior quality, and partly to the fact that the oriental origin of tea throws a veil of mystery over it. As we begin to study the subject this veil of mystery serves to pique our curiosity.

We must not expect to become tea experts overnight, because that is a profession by itself; but we can learn to brew tea properly, and be better judges of kinds and qualities.

It has been estimated that there are some three thousand tea brands, blends, and trade names, which seems bewildering until we know that these may be classified under three heads:

1. Unoxidized or unfermented, as green tea.
2. Partially oxidized or fermented, as oolong tea.
3. Oxidized or fermented, as black tea.

To make this classification more real let Japan pan-fired represent the green tea; Formosa oolong, the oolong; and English breakfast (China congou), the black.

Notice the characteristic color and cure of leaf. The pan-fired Japan has a medium-sized leaf, greenish in color and well twisted. The Formosa oolong has an evenly curled leaf with a somewhat crapy texture and a brownish color, with some leaves showing olive tinge. The English breakfast leaf is grayish-black to black, and well twisted.

Make a cup of each, using a teaspoonful of tea and freshly boiling water. Get the bouquet by taking some of the tea leaves on a spoon and smelling of them. Brew 3 to 5 minutes, then strain, and examine the leaves, noting the velvety green leaves of the green tea, the green leaves with coppery edges of the oolong tea, and the brownish black or reddish black leaves of the English breakfast tea. Taste the liquor when cool, as in that way one gets delicate differences in flavor.

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The Japan tea will have a light color, and delicate flavor; the oolong a darker color and a very characteristic aromatic flavor; the English breakfast tea is darkest of the three, and if of good quality has a fine fruity flavor and rich deep color. The differences one notes are largely the result of differences in manufacture, but soil, climate, altitude, and kind of leaf have an influence.

The different stages in the manufacture are: picking, withering, rolling, oxidizing or fermenting, and firing or drying.

Picking. In the spring the evergreen tea bush begins to send forth its new leaves. This new growth is known as a flush. When the leaves are large enough the bud or folded leaf and several leaves are picked. Later the buds at the axils of the leaves begin to grow and form a second flush. Not all the leaves of a flush are ready to pick at the same time, so there are more pickings than there are flushes.

The quality of the manufactured tea varies according to the season of picking and the number of leaves picked. The young growing leaf contains the most soluble matter and the old leaf the most cellulose, so the older, coarser leaves make inferior tea.

Withering. If black tea is to be made the green leaf is brought in and allowed to wither naturally by being spread on open floors or racks, or, artificially, by the circulation of heated air. The withering makes the leaves soft and in condition for the next process of rolling, and begins chemical changes that go on in the later processes.

Rolling. The leaves made flaccid by withering are now rolled by hand or by machinery, and the leaf acquires its characteristic twist. Some of the juice is expressed and later dries on the leaf. This makes the juice more readily soluble when the tea is brewed, and the twist in the leaf helps keep the flavor of the tea.

Oxidation or Fermentation. The leaves are spread thinly on floors or racks in a cool, dark room and the air necessary for oxidation is admitted by tossing and turning the leaf by hand or by fans run by machinery. The oxidizing enzyme of the leaf acts readily because the leaf has been bruised and some of the sap expressed by previous rolling. Chemical changes take place during oxidation which improve the flavor and aroma of tea and reduce its astringence. The change to a darker color which begins during withering is especially noticeable during oxidation.

Firing or Drying. This is carried on in pans over a fire, or by circulating dry air in machines made for the purpose. The heat is high enough to check oxidation and drive off the moisture which assures the

keeping qualities of the tea. At this stage the final characteristic flavor and aroma of the tea are developed.

If green tea is to be manufactured the withering is omitted, as this darkens the leaf, and instead the leaf is steamed or otherwise heated to a temperature that will kill the oxidizing ferment, but not the ferments that are needed to develop flavor. The same leaf may be manufactured into green or black, but some leaf is better for one and some for the other. After steaming, the leaf is in condition to roll, which, as in the case with black tea, increases the solubility.

The leaf is then fired. By the omission of withering and oxidation the leaf retains its green color, but it has a larger percentage of tannin than black tea made of similar leaf because oxidases have not had an opportunity to act on it. This accounts for the greater astringency of green tea. The oolong tea stands between the green and the black in its characteristics because, during its manufacture, it is underoxidized.

Further research may enable the producer to so control the processes of growth and manufacture as to get more uniform results.

BREWING TEA

Okakura-Kakuzo² says of our afternoon tea, "Strangely enough humanity has so far met in the tea cup. It is the only Asiatic ceremonial which commands universal esteem. The white man has scoffed at our religion and our morals, but has accepted the brown beverage without hesitation. The afternoon tea is now an important function in Western society. In the delicate clatter of trays and saucers, in the soft rustle of feminine hospitality, in the common catechism about cream and sugar, we know that the Worship of Tea is established beyond question. The philosophic resignation of the guest to the fate awaiting him in the dubious decoction proclaims that in this single instance the Oriental spirit reigns supreme."

If more attention was paid to the quality of the tea and the manner of brewing, a "dubious decoction" would not be so often our fate.

Tea experts insist that there is just one method of brewing tea, which is as follows: Put the required amount of tea in a hot pot, earthenware preferred, pour on freshly boiling water, steep 3 to 5 minutes, and strain into another hot pot. Three minutes will usually allow most of the aroma and taste to be developed without an excess of tannin, which

² The Book of Tea. Okakura-Kakuzo. Duffield and Co.

makes the tea too astringent; in other words, in a 3-minute brewing one gets the desirable qualities with a minimum of the undesirable qualities. A 5-minute brewing gives more body.

Water freshly boiling has a life and sparkle which it loses on standing or long boiling. Water that has been boiling for some time is distinctly flat and insipid. Since the amount of tea used depends on one's taste, also on the kind and quality of the tea, no hard and fast rules can be given, but the following suggestions may be useful.

China congou (English breakfast) tea will stand one even teaspoon of tea to the half pint cup of water and a 5-minute brewing, but a 3-minute brewing will probably make a more delicate cup of tea. For weak tea one-half a teaspoon of tea is sufficient, and for strong tea the teaspoon may be rounded. China congou has less tannin than the green teas and less than the India and Ceylon black teas. This is why more tea can be used to the cup and a longer brewing is possible without undue astringency. In fact some steeping is necessary to open its tightly rolled leaves and bring out the strength.

Measuring in a teaspoon is a rough means of measuring but it is the one used in the household.

Since China green tea contains more tannin than the China black tea, more care must be exercised in the brewing. A smaller amount of tea may be used with a 3-minute brewing, although tea drinkers often want the "body" which a 5-minute brewing gives. Even an infusion of green tea is light in color when it is strong, thus deceiving one who is used to black tea.

If one likes a minimum astringency with a delicious aroma and piquant flavor, a 3-minute brewing of Formosa oolong is sufficient. From $\frac{1}{2}$ to 1 teaspoonful may be used according to taste.

As India and Ceylon teas contain more tannin than China teas, $\frac{1}{2}$ teaspoon and no more than a 3-minute brewing should be used unless a strong tea is desired. This is especially true of the heavy bodied teas, such as Darjeeling and Assam. It is important to strain the liquor from the leaves as soon as the 3 or 5 minutes is ended.

The heavy bodied teas are especially good with cream. If served for afternoon tea with lemon they should be made weaker than when served with cream at meals. Japan greens may be given a 3- to 5-minute steeping and $\frac{1}{2}$ to 1 teaspoon of tea to the cup.

Tea may be made with water below the boiling point. This is the practice in some oriental countries. This makes a delicately flavored

tea. Boil the water, take from the fire and allow to cool slightly, then pour on the tea, let stand 3 to 5 minutes, and strain.

Strainers and Tea Balls. When guests are arriving intermittently it is convenient to make tea in a strainer placed over a cup. But aside from its convenience, this method has little to recommend it. For, when tea does not have time to steep and is used for several cups, the color is all that is left to remind one of tea. If the strainer is used the tea should be often renewed, and a kind should be used that parts quickly with its goodness. Ceylon or oolong is better suited for this purpose than English breakfast tea which needs steeping to bring out its flavor.

A tea ball should be used with caution. Never fill it so full of tea that the water cannot penetrate. For the best results, fill the ball about half full of dry tea, as the tea will swell when the water is added. If the ball is to be dangled in a succession of cups of hot water, it should be emptied and refilled before the flavor and aroma are dissipated.

Various other methods are used by which the leaves may be removed from the liquor when the tea is sufficiently steeped. Muslin bags may be made which will hold the required amount of tea. These should be scalded and dried thoroughly, filled with tea, and put in a tight receptacle. As the bags have strings attached to them, they may be removed from the pot at the proper time. This method is used in some hotels and tea rooms,—but it apparently does not suit everyone, for a man served in this fashion was heard to remark, "I have found cloves, lemon, or rose leaves in my tea, but never before have I found a rag."

In tea room work, teapots with strainers may be used. After the first cup is poured, the water is reduced so that the leaves are no longer covered. If some such device is not used the second cup of tea is too bitter. When the pot of tea is made fresh for each person, the customer does not seem to realize that he must let the tea steep before pouring or the tea will be too weak; or he may let it stand too long and the tea will be too strong.

Points to be remembered in brewing tea: Measure carefully. Have the water freshly boiling. Have two hot earthen pots. Steep three minutes. Never boil tea. Strain leaves from liquor. Keep hot in tea cosey or where tea will not boil. Tea served with cream should be stronger than tea served with lemon.

(To be continued.)

THE EIGHT-HOUR DAY IN OPERATION

GEORGIE BOYNTON CHILD

This article is part of a series of "studies" on the employment of non-resident workers in private homes. The first of these articles "The Six Hour Day for Housekeepers" appeared in *The Delineator*, July, 1919; a second, "Planning the Eight Hour Day" was published in the November issue of *The Delineator* the same year. Other studies were to have followed but the topics were changed at the request of the editor. The studies are based on careful records of the duties performed by various resident and non-resident employees in my home during the past sixteen years. During half the time I employed help according to the conventional plan. For the last half I experimented with different plans, employing non-resident workers chiefly. The first study shows how well, under certain conditions, a combination of resident and non-resident help will work out. In homes where there are very young children, or invalids, or old people, it is very desirable to have one resident worker of responsibility and refinement. Such a person can carry light duties but is not usually physically able to put in long hours or to do the energetic kind of work required of the general houseworker. A happy home means much to such women. If housekeepers would realize this and be willing to organize their housekeeping so that such workers could command a certain amount of freedom, and not lose caste by undertaking the work, there would be found many to fill the positions of resident caretakers at nominal pay. Strong, capable women, who can do a good day's work command high wages.

I have not found the supply of employees fail me even during war-times, although changed conditions have made it advisable to adjust hours and increase the pay. During the years covered by those studies I have always been able to command at least three hours of uninterrupted time in the mornings for study, writing, or professional consultation, and to devote an unusual amount of time to the supervision and interests of my four children, the youngest of whom is now five. The wages paid for the service have varied between \$7 a week and \$13, the latter amount covering two part-time workers, one of whom was paid \$9 per week of six days and the latter \$4 for extra work required. There have been no extra "incidental expenses" to figure in, as is the case with resident workers where room-rent, light, heat, three meals a day, and waste in preparing meals must be added to the \$50 or \$70 a month now paid for average service. I have included dinner each day, so the cost of materials must be added to the wage, but this did not figure more than \$1.50 a week extra and added a great deal to the contentment of the worker. By the non-resident plan the housekeeper has to keep a close hand on supplies, so there is no opportunity for careless or negligent management on the part of either mistress or maid.

Yes, the eight-hour day for houseworkers is really a success. Housekeepers who have tried it like it because it brings to the home a superior class of workers—women of all-round ability who are willing to put in their time at any household task. The workers like it because they have a short day of concentrated but varied work. They are independent and free to make their own plans during the hours they are off duty. Best of all they can keep up their own homes or live in boarding houses with their friends.

This new basis does away with the idea that one is hired to do cooking but not wait on table, or to make beds but not to iron. The worker lays aside the demands of specialized labor and agrees to be of service eight hours a day at any task, whether it be cleaning, cooking, serving meals, ironing, sewing, or the care of the children. Gardening and light washing are often included in the tasks that may be assigned.

The worker benefits by the variety of work as much as does the housekeeper. Varied work is not so monotonous and wearing as repeating over and over the same kind of tasks. Under this new arrangement the worker obtains one free day a week and all her holidays. Best of all, she is no longer regarded as a servant but is called by her surname and title, just as she would be if she were working in a shop or office.

No Shortage of Household Workers in War-time. A friend of mine became interested in this new basis of employing domestic help, when war work was making its most tempting and attractive offers. She put an advertisement in the city paper which read as follows:—"Wanted, a woman to assist with housework five hours a day, six days a week, at twenty-five cents an hour." She did not expect many applicants. The intelligence offices had all assured her that there was no household help to be had. That was what determined her to strike out in this new direction. Much to her surprise, she was flooded with applicants. Over a hundred women applied, and one man.

After a personal interview with the most promising applicants, my friend made her selection. The plan was working very successfully when she was called away from home by the illness of a sister and had to give up housekeeping temporarily. On her return she decided to adopt the same general arrangement again, increasing the time to eight hours a day. She secured the second assistant from the list of names filed in answer to her first advertisement. The new incumbent had been a practical nurse. She agreed to come eight hours a day, six days a week, and three hours on Sunday.

The hours were divided into two shifts, from 9 a.m. to 2 p.m. and from 4.30 p.m. to 7.30 p.m. The arrangement included two meals daily for the worker, which is not the usual practice when help is engaged on this basis. The woman agreed to work for \$8.00 a week, including three hours on Sunday. This price is equivalent in value, to a worker without a home, to \$14.00 a week when no meals are included, but in cases where workers live at home without paying board it would not be of this comparative value. The woman was not especially trained for her work, and was not expected to take charge of the cooking. It did not take long, however, to give her the necessary training, and the arrangement proved very satisfactory on both sides.

Conditions To Be Met. This friend is a doctor's wife, living in a big house in a Connecticut city. She is a woman who has kept up with all the modern ideas about housekeeping and is herself a capable housekeeper and manager. The family consisted of four members—the doctor, his wife, his son, and a young girl who was spending the winter with them. The doctor had his office in the house, which added considerably to the housekeeping problems. The house is large, of an old-fashioned type, with very high walls, and full length windows, requiring an immense amount of work to keep it clean. It used to have a big, rambling, impossible kitchen with pantries adjoining.

Before employing non-resident help, all the working conditions were made as perfect as possible. The heavy labor was reduced to a minimum by covering the floors of the big kitchen and pantries with linoleum. The most important operations of the kitchen were concentrated in one corner, so there was no loss of steps between the sink, the stove, and the mixing center; the refrigerator was brought into the kitchen from a distant pantry. In its new location it was conveniently placed with relation to both the dining room and the mixing center. A large coal range which had always been run very wastefully by the help, was replaced by a gas range. A fireless cooker was installed.

A wheeled tray reduced the labor of the long journeys back and forth between the dining room and the kitchen. Labor-saving equipment for every kitchen task was purchased to lighten the work and save all possible time. This extended beyond the kitchen to laundry apparatus and a vacuum cleaner. In this way all the necessary work was reduced at least one half.

My friend likes cooking and it seemed important to keep the work under her direct control and supervision, because the arrangement was

economical and because her husband had to have his food very carefully prepared. It was possible to secure a laundress who came in two days a week for the washing and ironing and one day for extra cleaning. The doctor employed an office girl who took charge of the door and telephone during office hours, as well as the daily cleaning of the office suite. Her hours were from 10 a.m. to 12.30 p.m. and again from 1.30 to 5 p.m. She was on duty also two evenings a week. The services yet remaining could be performed by one competent woman. A large part of this worker's time was devoted to the daily care and cleaning of the kitchen suite and the upstairs rooms. She also attended to setting the table and the routine part of the cooking, as well as serving luncheon and dinner.

How the Work Was Planned. The assistant came on duty at 9 o'clock. Breakfast was prepared by my friend, the mistress, assisted by the young girl. The dishes were scraped and stacked on the wheeled tray, ready to be washed. The assistant washed the dishes, tidied up the kitchen, washed out the kitchen towels, and gave the dining room a thorough daily cleaning. By 10 o'clock she began the upstairs work, making beds in four rooms, taking care of bath rooms and halls and performing all the little tasks included in the upstairs routine of an orderly household.

This work was always completed in an hour, and often in less time. The balance of the time not required for the preparation of lunch was spent in the weekly cleaning of some special room. The rest of the weekly cleaning was done by the laundress on the regular cleaning day. The lunch was then prepared and served, the dishes washed and everything put in careful order before 2 o'clock, when the assistant went off duty.

At 4.30 p.m. the assistant returned to prepare and serve the dinner. This proved to be a convenient time for my friend to do the baking, dessert making, and all extra cooking, as she could then be helped by the assistant. Three hours a day were found to be ample to allow for preparing and serving dinner and for the extra cooking. The assistant cleared up afterward and was through for the evening by 7:30.

It will be noticed that the division of hours between 9 a.m. and 7.30 p.m. was so arranged that either the assistant or the office girl was on duty to answer the door and telephone, a point quite necessary in a doctor's family.

Eight-Hour Plan a Success. My friend tells me that they have never liked any arrangement so well as the present plan. The house has never been so well kept up. All the little things that are often overlooked by resident helpers are now thoroughly done. The worker is genuinely an assistant. The mistress is free to call upon her for help in any task, at any time, as she was not when she kept two maids and followed the conventional division of housework. There is much more freedom in planning the work now that she does not have to consider whether it "comes within the bond" to do this or that task. The keynote of the plan is coöperation and the spirit of service.

This experiment is of interest and value to all housekeepers because it illustrates the progressive, unconventional way of solving one's housekeeping problem. The business arrangement between the housekeeper and the worker meets the needs of both parties. It includes the essential points in the employment of both resident and non-resident help.

The rate of pay per week is based on definite hours of service. Everything has been done to make the conditions of work easy and pleasant. It is a decided advantage to the worker, in this instance, to have two meals a day at her employer's home. It would be very difficult for her to have such wholesome, appetizing meals as she gets here without paying a very high price for them. Home-cooked food cannot be estimated at restaurant prices. If the conditions on either side were different, however, it might be better not to have meals included in the arrangement, but to pay a higher price in cash. In the same way it might be fairer to the worker not to expect her to do any work on Sunday.

These are matters that ought to be adjusted to individual needs. The important point to consider in this relation, as in all business matters, is to have the working agreement fully understood on both sides and based on the best interest of both employer and employee.

EDITORIAL

The International Federation of Home Economics Instruction and the Third International Congress of Home Economics Instruction. The American Home Economics Association last June voted \$25.00 to be paid to the International Federation of Home Economics Instruction, and thereby became a member of the federation. Definite information regarding the organization of this, the only international organization dealing primarily with home economics subjects, will therefore be of interest to members of our Association.

According to the constitution, the aim of the federation is to encourage the development of home economics instruction in all countries by means of coöperation with public agencies, scientific and professional organizations, and individuals. Its membership includes official representatives of governments granting an annual subsidy, as well as individuals, institutions, and associations interested in home economics instruction.

The governing bodies of the federation are the Plenary Assembly, the Permanent International Committee, the Executive Committee, and the International Office of Home Economics Instruction.

The Plenary Assembly of members is held every four years, at the time of the international congress.

The Permanent International Committee acts for the assembly between such meetings. It consists of a delegate from each government and association contributing to the federation and of one representative for every 50 members in each country, such representatives nominated from among the individual members and elected by the Plenary Assembly. In order to maintain active connection with the federation a corresponding member and an alternate are appointed by the delegation from each country. The Permanent International Committee meets regularly before the opening of the congress and on special call by the president or at the request of three countries. It nominates the executive committee and draws up the rules governing the congresses.

The Executive Committee consists of from 5 to 9 members and has the general direction of the work and expenditures of the federation, including the International Office of Home Economics Instruction.

This office, established in 1908, has its seat at Fribourg, Switzerland. It is under a director, M. Leon Genoud, who is also secretary of the federation and is appointed by the executive committee. He and his staff carry out the decisions of the executive committee, collect and distribute information, maintain a library and bibliography of home economics publications from all countries, and encourage the study of questions to be placed on the programs of future international congresses.

The federation is supported by subsidies from governments and associations, by the dues of individual members, and by gifts. Each government granting an annual subsidy and each association paying 100 francs per year is entitled to at least one representative on the international committee. Annual dues of individual members are 5 francs. Life membership is secured by the payment of 100 francs, and associations or individuals making a gift of 1000 francs are to be listed as founders. Application for membership should be sent to the Office International de l'Enseignement Ménager, Fribourg, Switzerland.

Although the United States Government, unlike most European governments, does not grant subsidies to such international organizations, but leaves their support to private initiative, Dr. C. F. Langworthy of the Department of Agriculture has been a member of the Permanent International Committee since the federation was organized.

The Third International Congress of Home Economics Instruction has been called at Strasbourg, Alsace, for July 28 to 31, 1921.

The organization and procedure of the congress are somewhat different from those usual in professional gatherings in this country, as appears from the rules recently drawn up for the government of the congress.

The Permanent International Committee, having chosen the plan of the congress, appoints a National Committee on Organization composed of persons from that country and of the secretary of the federation and entrusts to this committee the task of arranging for and financing the congress. It is aided, in details of arrangement, by a local committee in the city where the congress is held.

Membership in the congress consists of the delegates of those governments, municipalities, institutions, or corporations, paying a fee to be fixed by the committee on organization, and of individuals registered with the local committee who shall have paid a fee similarly fixed. Thus membership in the federation does not, in and of itself, entitle to membership in the congress, nor is membership in the congress limited to members of the federation. Each delegate and individual member whose fee

to the congress has been duly paid, receives a membership card which entitles him to take part in the deliberations of the congress. Visitors cards will also be issued to non-members at a price fixed by the committee.

The working sessions of the congress include general and sectional meetings. They are under the direction of the Board of Officers (*Bureau*) elected at the opening session. This board determines the final form of the resolutions and conclusions adopted by the sections and presents them at the closing session of the general assembly as the conclusions of the work of the congress, to be later published by the international federation.

The way in which the program of the sessions is drawn up and carried out is perhaps the part of the proceeding least like our own. On the basis of suggestions presented by the Director of the International Office, the Permanent International Committee adopts a program of topics for discussion by the congress. Individual contributions to these discussions are presented in advance to the National Committee on Organization, and this committee appoints competent editors or reporters (*rapporteurs*) to condense these into general reports on the various topics. These general reports, printed in the original language and accompanied by résumés in the other languages admitted by the congress, are sent out four weeks before the date of the congress, to all who have paid the membership fee of the congress. At the sessions of the congress, each reporter opens the discussion of the question assigned to him, after which other members may join in. Discussion is confined to the topics specified on the program and is limited to thirty minutes for the reporter and ten minutes for other speakers, and no person may speak more than twice on the same subject without the consent of the officers of the section. Speeches are as far as practicable translated into the admitted languages, and it is requested that a written résumé of each be handed at once to the secretary.

The national committee arranges for the publication of the report of the congress and copies are sold on subscription. This report contains the proceedings of the congress and the resolutions adopted.

TOPICS PROPOSED FOR CONSIDERATION AT STRASBOURG

- I. Home Economics Instruction in Different Countries Since the Congress at Ghent (1914)
 - Situation before the war
 - Situation during the war
 - Increased participation of women in national life by replacing mobilized men; established facts

- How have the home economics schools survived and how did they function during the war?
- Were they subsidized by national or local governments?
- How were they adapted to special circumstances and what state and local services did they render?
- Did government authorities appreciate such services and how was such appreciation shown?—Results (greater participation of women in political, economic, and social life)
- Present situation
 - General reconstruction; rôle of women and home economics instruction (simplification of household labor)
- II. Home Economics Instruction in Primary Schools
 - How and when should home economics instruction be given to girls in the primary schools?
 - Is specially installed equipment necessary for this instruction?
 - What should this equipment be in city schools? in the country?
- III. Home Economics Instruction as a Part of the General Education of All Girls
 - Should home economics instruction be required in secondary schools for girls?
 - How and when should home economics instruction be given in secondary schools for girls?
 - Is special equipment needed for each school giving such instruction?
 - What specially installed equipment would be needed in city schools? in the country?
 - Home economics instruction for boys
- IV. Home Economics Science in the Universities
 - Introduction of subjects bearing on the science of home economics into university research laboratories
- V. Relation of Home Economics Instruction to Education in the Home
 - How may parents be shown the value of home economics instruction?
- VI. Relation of Home Economics Instruction to Professional Education
- VII. Agricultural Schools of Home Economics
 - Means and methods of making home economics instruction efficacious in rural districts
- VIII. Post-scholastic Instruction in Home Economics
 - Special instruction for girls; travelling schools; courses in child care and training
- IX. Normal Instruction in Home Economics
 - How may courses be organized for the rational preparation of a teaching force in home economics science?
 - The importance of the formation of such a teaching force
 - Home economics pedagogy
 - Should home economics instruction be by the individual, group, or mutual [groups of pupils taught by pupil-teachers under supervision of the instructor] method?
 - What special equipment should be provided for such instruction in normal schools of home economics?
- X. Inspection of Home Economics Instruction
 - Duties of inspectors
- XI. To What Extent Can Home Economics Schools Aid in the Improvement of Social Conditions from the Point of View of Housing, Food, Child Hygiene, Coöperative Organizations of Consumers, High Prices, Food Adulteration?
- XII. Professional Training of Servants in the Family (Required Examination)
 - Professional orientation
 - General management: Organization, science, and simplification of domestic labor

BOOKS AND LITERATURE

Text Book of Chemistry for Nurses and Students of Home Economics. By ANNIE LOUISE MACLEOD, Associate Professor of Chemistry, Vassar College. New York: McGraw Hill Book Co., Inc., 1920, pp. 192. \$2.25.

The purpose of this book is "to present in one volume those general principles of chemistry, inorganic, organic, and physiological, which give the necessary foundation for practical courses such as nutrition, dietetics, and cookery, materia medica and bacteriology, which are more or less distinctly dependent on a basis of chemical theory."

Inorganic chemistry is treated in the first 71 pages comprising ten chapters. The next 34 pages, divided into eight chapters, are devoted to organic chemistry, followed by 34 pages of physiological chemistry under the chapter headings, Digestion, Assimilation, Energy of the Body, The Blood, Excretions of the Body. The last part of the book is devoted to a practical manual including 22 exercises intended to give the beginning student some skill in manipulation, and a first hand acquaintance with some of the principal substances studied.

It is very evident that, in a book of this size, covering such a wide field, only the most essential substances and principles of chemistry can be taken up.

The author has carried out well her object of eliminating "much that would be included in the conventional chemistry course in order to avoid confusing the student who has only a limited amount of time to spend on this subject." Indeed it seems that some material has been eliminated which can hardly be excluded, even from a book of this scope. Dismissing such important elements as phosphorus, sulfur, calcium, potassium, and sodium with only incidental mention in other chapters seems hardly excusable, and calcium and phosphorus at least should have

been included in the list of most important elements. The chapter on the metals is disappointing, being chiefly a recitation of the physical properties of the metals in common use. No mention is made of the chemical behavior of the typical metals of the alkalis and alkaline earths. In the chapter on the paraffins some mention might well have been made of crude petroleum and its distillation products and of the important substances paraffin and vaseline.

There are some misprints and a number of inaccurate and misleading statements. We learn on page 62 that the boiling point of water is 180°F. and on page 145 that "blood heat is about 27°C." The first equation on page 92 is not balanced. Hydrogen is no longer taken as the basis of our atomic weight as the reader is led to believe on page 6. It is hardly correct to say that the "kindling point" of small pieces of kindling is lower than that of larger sticks of wood as is stated on page 14. The statement on page 62 in regard to the decomposition of ammonium salts leads the reader to expect ammonium chloride to give a strong odor of ammonia. The definition of a calorie on page 128 seems hardly satisfactory. It is to be hoped that these and other inaccuracies may be corrected by the author, as they detract from the value of the book which is entertainingly and on the whole clearly written, containing information indispensable to the well trained nurse.

It is doubtful if the treatment of the subject is extensive enough for the book to find a place in the average university or college course in home economics. An extensive index and a list of the supplies necessary for carrying out the laboratory experiments are desirable features.

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COMPILED BY MARGARET NORTON

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NEWS FROM THE FIELD

The New England Home Economics Association has presented the following calendar. Its basic subject is The Relation of Home Economics to Health.

The first meeting, held October 23, introduced the year's work by reports of conditions abroad and a suggested plan for health work in public schools. Mary McSkimmon, President of the State Federation of Teachers' Clubs, spoke of the great faith and courage of the women of France and Belgium and urged that American women should do their utmost to carry the country safely through the coming hard winter. Mabel C. Bragg, Assistant Superintendent of Schools, Newton, outlined the Health Program in the Newton Public Schools. She feels that the home economics teachers can do much to improve the health of the children in the public schools. Mrs. Schuyler F. Herron, Director of the Home Department of the Eastern States Exposition, outlined the work and purposes of the exposition.

The second meeting, held November 13, had a large attendance. Intense interest was shown in Mabel Todd's explanation of why so many women, and men too, are inefficient machines. Physical balance she affirmed was fundamental to mental balance. With diagrams, photographs, and a human pelvis she made clearly evident the need of proper posture both in standing and in sitting.

Mrs. Ida Harrington showed the relation of posture to form and health and their relation to attractiveness. She told, in detail, how to make "Betty" your own dress form. The construction of "Betty" is not difficult and her use by the home dressmaker needs to be encouraged as a measure toward economy and beauty.

The Clothing Bureau, Boston, showed how its efforts were applied towards Standards in Dress, in buying, in overcoming difficulties in shopping, and in other helps for the buyer.

An appeal came from the Children's Hospital telling how individuals, groups, and schools could coöperate their sewing and other hand-work lessons with the hospital in supplying constantly needed articles. A standard set of samples is furnished.

At the third meeting, December 11, the subject was The Development of Home Economics under the Smith-Hughes Act and Needs in the Field Making the Passage of the Fess Bill Important.

Deputy Commissioner Small, Massachusetts Department of Education, paid tribute to the good work done through home economics during the war, presented the greater needs and opportunities of the present, and urged redoubled zeal. He said educational opportunities must be increased until every individual is reached. Education in home making should be given to every child in the regular schools, but after and beyond school age there should still be individual opportunity to study the problems of the home. Massachusetts allots 20 per cent, or one fifth, of the Smith-Hughes appropriation for home economics teaching. Each community receives its aid on a pro rata basis. The Smith-Hughes money then enables the community, not only to lengthen the time for study, but to broaden and deepen its possibilities.

Mr. Redman, Assistant Director of Extension Service in Massachusetts, and Minnie Price, Home Demonstration Agent for Hampden County, Mass., showed how the provisions of the Smith-Lever Act were carried out in the counties through the fol-

lowing projects: Household Management, Food Preservation, Health, Clothing Efficiency, Nutrition, Milk Campaign, Dental Clinics, Nutritive Group Study, Fly Campaign, and Community Tours. Kitchen equipment was studied by some groups. In New England the work is done in coöperation with some county organization. In Massachusetts during the year ending November 30, more than 150,000 persons have participated in some form of home economics study and practice.

Mr. Redman emphasized the evident need of training extension workers in writing good reports. His advice, "Learn how to make a good report of your work," should be an integral part of teacher training. Miss Price's excellent report showed the high standard which may be reached. While so much is accomplished a large field is still barren because of too little money. Therefore is seen the importance of "our bill," the Fess Bill or Amendment, which, when adopted will place vocational home economics on a par with agriculture and trade and industry in the amount of money allotted.

Adelaide Steele Baylor, Federal Board for Vocational Education, came from Washington to tell of their outlook and achievements. To establish a democracy homes are necessary for its citizenship. Homemakers are carrying on a vocation. Their jobs need to be analyzed, which requires extended research. Teachers need contact with the vocation, and must therefore go into homes and work under supervision. Expert supervision is not now provided because of lack of funds. The application of these three acts—Smith-Lever, Smith-Hughes, and the Fess Amendment—should give to each home and each community a richer, freer, fuller life. By such a life is assured the life of the Nation.

The Washington (D. C.) Home Economics Association has planned to hold a meeting once every two months. At these meetings the home economics people of this section have become acquainted with each other, have made themselves familiar with

each other's problems and plans, and have made an effort to keep abreast of some of the newer movements of interest to women. Some of the meetings have been devoted to mere social good times.

The December meeting was addressed by Mrs. Philip North Moore on the subject "Some Glimpses of the International Council of Women Meeting in Christiana," and by Jeannette Rankin on the "Sheppard-Towner Bill." At the last dinner, which was the bi-monthly meeting, there were one hundred and ten home economics people present.

Mrs. Henrietta Calvin is president and Miss Ridgway secretary.

NOTES

Mary E. Sweeny, President of the American Home Economics Association, is now Dean of Home Economics, Michigan Agricultural College, East Lansing. Miss Sweeny was formerly Head of the Home Economics Department of the University of Kentucky, and in charge of Home Economics Extension Work. She had been connected with the University of Kentucky since 1912. During the years 1918 and 1919, she served overseas with the American Army in the Canteen Service of the Y. M. C. A.

Miss Frances Zuill, instructor in the Department of Household Arts Education at Teachers College, Columbia University, has been appointed Supervisor of Home Economics in the Public Schools of Baltimore, Maryland.

Maud E. Hayes, formerly Specialist in Home Economics Extension Service, Connecticut Agricultural College, Storrs, Connecticut, is now Supervisor of Home Economics in the Long Beach City Schools, Long Beach, California.

Flora G. Orr has resigned from the editorial staff of *The Delineator*, her work ending with the March issue. Miss Orr went to *The Delineator* directly from editorial work in the Food Administration.

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HOME ECONOMICS IN A GIRLS' COMMERCIAL HIGH SCHOOL¹

EVELYN W. ALLAN

Principal, Girls' Commercial High School, Brooklyn, New York

Every American educational institution is pledged first of all to develop the ideals of democracy and to educate both girls and boys for the duties of citizenship. Not only universities and colleges but even high schools feel the necessity for providing each generation with some means of coming into at least a fraction of its rightful inheritance of the world's treasures in literature and art as well as of understanding something of its modern scientific achievement. When a high school, in addition to these common aims, lays special stress on: (1) preparing pupils for entering helpfully into the commercial life of the community, by giving them the necessary fundamental training and an intelligent comprehension of the commercial opportunities offered in their city; (2) establishing a vital relation with the business community so that the school shall be, not only an avenue leading into commercial life, but a source of supply to the business system of the community, a recognized point of contact between the educational system and business life; and (3) keeping so closely in touch with business forms and methods that each new change shall promptly be adopted into the commercial training,—then such a school is rightly differentiated as a commercial high school, however relatively broad or narrow the scope of its training and service to the community.

¹ Presented at the meeting of The American Home Economics Association held in connection with the Division of Superintendence, N. E. A., Atlantic City, February, 1921.

A girls' commercial high school must do even more; it must keep in mind that its graduates may leave business at any time (according to statistics at the end of the sixth or eighth year) to become homemakers and mothers. What is more upon the conscience of the educator than the training of these girls, who are actually a factor in business life, who become citizens, founders of homes, spenders of the family income, and who bear and rear children, to the profit or loss of the next generation? Personally, I think it equally important that boys, who eventually become householders, earners of the family income, and fathers of families, should be prepared for their responsibilities. In fact, I should like to sketch a course in home economics for boys, but, as that is not my present problem, I shall confine myself to the home economics courses for girls to which we are all so thoroughly converted that every commercial high school I know anything about (except my own) offers special homemaking subjects, as electives.

I have indicated all that a girls' commercial high school should accomplish in theory, now what are the facts? First, while such a school is differentiated as a commercial school, its commercial range does not yet include much beyond stenography, typewriting, and bookkeeping; and, when these subjects are not found in the first year, hundreds of girls go to the shorter courses of the private business schools. The parents of boys are convinced of the value of a four years' commercial course, and the boys themselves are held by the broader interpretation of the commercial curriculum to include, not merely stenography, typewriting, and bookkeeping, but all the occupations concerned with the exchange of commodities, such as transportation, banking, advertising, insurance, and business management. The same parents are not convinced of the value of such a four years' training for their daughters.

Let us examine the reasons why the girl elects the commercial high school.

Her family fears that she may some day be obliged to support herself, and it is the wise virgin who fills her lamp. If she has stenography and typewriting at her command, she will be able to maintain her place in her stratum of society. Or her family is actually dependent upon her help in supporting and educating the younger children. The commercial course is a direct route to a "nice respectable office job." Or the family income, though sufficient to send her to high school, is static. She sees no way to reach the larger social life she begins to crave—the smart clothes, the activities that demand many "extras"—except by

earning them herself at the end of her high school course. The family has come to look upon her ability to do so as her dowry, or "dot."

I have not mentioned the girl who chooses the commercial high school because she is ambitious to be a real business woman, to be an employer, to risk her own capital, and to take her place among competitive firms. I am under no illusions about the business woman. There are thousands of women in business, but, as yet, only an infinitesimal number of business women.

If you examine the three reasons that I have given for the choice of the commercial high school, you will discover the same attitude in all three—home the ruling interest, business a transient means. "Ah," you say, "if these are the facts, how fortunate that we have home economics for her in the commercial course." But alas! She finds only repetition of her elementary subjects. It is my conviction that cooking and sewing, *per se*, belong in the elementary school. Advanced courses in cooking and sewing, dressmaking and millinery, belong in the vocational high school, which trains dietitians and makes dressmakers and milliners for the trade.

The high school girl is usually a factor in the home kitchen. She has no opportunity to lose the knowledge and experience that she has gained in her elementary school training, and she is intelligent enough to follow suggestions made in high school courses, report on her results, and go on building on her elementary knowledge. In her general science course she learns as much about food values as the ordinary housekeeper needs to know; in her hygiene course she gets, not only personal hygiene, but the hygiene of the home; in home nursing she learns many other phases of home economics. It is a joy to me to hear in a class in community civics that there are twenty-four milk stations in Brooklyn, and that a doctor and a nurse are in attendance to weigh babies that the mothers in the neighborhood take there for examination and advice; to hear the family budget discussed in relation to food, clothing, recreation, and kindred topics; and to see the enthusiasm that centers around the home. And these courses are not elective.

While conditions differ in various parts of the country and are shifting yearly, I have questioned more than two thousand girls in New York City commercial high schools, and of the two thousand, all of whom learned to sew in the elementary schools, only sixty-three actually do sew. "Nobody in our family has time to sew," they tell me. Their sisters go to business; their mothers are too busy. "It is more

satisfactory to buy things ready made." And so it is, whether one lives in the center of the garment industry, or buys from a mail-order house by parcel post. Just as the making of quilts, comfortables, and curtains has been taken out of the home to the factories, so now sheets, pillowcases, and towels are not even hemmed at home. There are specialty shops with merchandise only for infants, others only for juniors, still others for misses; this high degree of specialized merchandising standardizes styles and reduces costs. Women's garments are divided into house dresses, afternoon dresses, evening gowns, negliges, sport suits, and so forth, and any one must see in this constant advance the passing of the homemade garment. Over a hundred of my two thousand claimed to make underclothes, but "not everyday ones, just fancy ones."

In facing the facts, we must acknowledge that our homemaking courses do not hold the girls in school; and that they are entirely extraneous to the commercial work and are only of mild interest to the girl who gets enough practical domestic science at home and knows that she will always buy her clothes ready-made.

What then do I suggest that will better function in our commercial course? I should, for the present at least (nothing can be permanently adjusted), recast the course into the economics of buying. The study of general economics forms a part of the regular course, and a very definite course in merchandising for herself, her dependents, her home, could be easily dovetailed. She needs to know more about buying everything, beginning with food, and more about the food market, cold storage problems, and the like. She buys furniture scarcely knowing one wood from another, and knowing nothing of joinery, finish, varnish, or of period styles and their appropriateness to her home environment. She buys carpets and rugs blindfolded by ignorance of all color harmony, pattern value, and wearing quality; she never does "remember" whether she has bought a Wilton, an Axminster, a Brussels, or something else. She may be "keeping up with the Joneses," but that is her only standard. This same person buys lamps, china, silver, sofa cushions, curtains, and chooses wall paper, yes, even pictures to hang on the walls and grow into the lives of the children. What has she been taught about buying such things? Does she even understand true economy in kitchen utensils?

The majority of our high school girls know the fashionable woollen textiles used for women's suits, such as serge, tricotine, duvetyn, and

the like, but beyond that textiles mean little to them. I have sold textile merchandise, and I know that the ordinary good customer cares little for anything but the style of the garment and the price. Because she has no standard of judgment, she can make no demand on the manufacturer; she is the easy mark of the designer and will wear the style in the price she is able to meet. Whose fault is it that she is betrayed into the caricature we commonly behold? Has her aesthetic taste been awakened, her sense of line and proportion been developed? Was she ever called upon to explain or defend the color of her sweater and the color of her hat? Does she know anything about color? Why do we leave her to become the victim of the lawlessness of fashion? You will appreciate that I am not urging just a course in textiles; not simply a study of silk and linen, cotton and woolen; not even a study of woods, metals, glass, and porcelain. What I am urging is a study of these in the form of merchandise for the home, controlled by the family budget, by the state market, by the canons of good taste.

I have not dressed these suggestions in the popular terms of the "project problem," but I assure you that they can not be taught in any other way. Instead of the customary kitchen laboratory and sewing rooms, there should be a suite of rooms bearing the same relation to the home that the office practice room bears to the business office. They should be furnished by each class, in illustration of the principles I have mentioned. Such rooms used for social occasions, for example club meetings, class luncheons, teas for visitors, are also a real factor in helping to develop the social graces so sadly lacking in some of our girls of high school age, but just as necessary for the general good as the economic buying for which I have been pleading. In this way, I believe, the high school girl can best be fitted for her double vocation—the office and the home.

UTILITY IN EDUCATION

AN INTERPRETATION OF THE SPIRIT OF THE TIMES

To say that education has shifted from the classical-cultural to the industrial type is to intimate that society itself has undergone a radical economic transformation. The characteristic elements of this change are outgrowths of the eighteenth century Industrial Revolution, now finding somewhat belated expression in America in the current social readjustment. Two of its outstanding features, the money economy and the machine-production economy, have made possible an almost incredible expansion of productive capacity which has slowly shifted the social center of gravity from the use of goods to their production. By far the larger part of the social resources are thus shunted toward the productive process. . . . No corresponding elaboration of technique has occurred in the field of consumption.

Production is primarily competitive and dynamic, consumption emulative and static. The one develops, under modern conditions, a constantly improving technique, while the other changes but slowly. Production uses the social machinery freely and thus reacts directly on society; consumption pertains chiefly to the individual or small group and affects the social machinery but little. Now, the classical type of education, by which, of course, is not meant any particular set of studies but their fundamental purpose, is directed toward the promotion of appreciation and valuation, which are the basic elements of consumption. It has thus, like consumption, suffered a depression coincident with the overlordship of the productive interest. In addition it has had to bear the imputation that it is a mere luxury, that it centers on individual excellence rather than social worth, and that it breeds a culture caste inconsistent with democratic ideals. This latter indictment was never sound in logic, and in practise is true only to the extent that in an over-industrialized society the materials of culture are not socialized to the same degree as are productive agencies. A social readjustment in the interest of balancing-up the consumption technique will go far toward wiping out whatever stigma now attaches to cultural ideals. For after all culture is essentially social. Although beauty may possibly be its own excuse, no one has ever seriously contended that intellectual excellence can validate its existence except as it ministers to the unity and solidarity of the general life . . . —*U. G. Weatherly in Educational Publicity, Scientific Monthly, February, 1919.*

OPPORTUNITIES FOR WOMEN IN THE MODERN HOTEL¹

MRS. LOIS PEIRCE HUGHES

Manager Woman's Floor, Hotel McAlpin, New York City

In a world in which all is change and growth, no more radical change has come than in the conduct of present day hotels. They have grown and expanded beyond the dreams of the most forward looking manager of a generation ago, and today one wonders what another generation will be able to add to the present mode of management and comfort.

The metropolitan hotels with their ever increasing number of rooms and consequent increasing number of employees, together with the great amount of capital invested, make their managers true captains of industry, and hotel doors are now veritable doors of opportunity for the business woman, daily swinging wider for her admittance.

Hotels, like other industrial plants, are divided into departments, each a spoke in the wheel of organization, the hub of which is the manager. The conduct of each department calls necessarily for a high degree of system and skill in industrial management. At present scarcely a department exists that has not a woman employee, in fact some departments so logically belong to woman's field, that they are now managed by women almost entirely. So far as I know, no man has ever applied for the position of housekeeper. That field still remains open to us, and for reasons with which we are all familiar, seems to be essentially ours for some time to come.

The qualifications of a good housekeeper are manifold. She must be skilled in handling maids and housemen, must have a knowledge of linens and upholstery, carpets, rugs, hangings, and curtains. Nor is it a small task to provide for and keep track of bedding and linen for two thousand bedrooms, some with two beds to the room and with cots often added. Those who are fond of arithmetic can figure the number of sheets and pillowcases required to change these beds with four pillows for each every day, and keep some linen on the closet shelves, while other pieces are traveling back and forth to the laundry. So, too, with washable window curtains, towels, table cloths, and napkins, for the housekeeping department supplies the linen for the restaurants. The writing paper, ink, and pads which we find on our desks are supplied by

¹ Presented at the meeting of the Institution Economics Section of the American Home Economics Association, Madison, Wis., May, 1919.

this department, as well as the bathroom appurtenances, such as soap and wash cloth. This department is responsible for the keeping of the assembly and public rooms of the hotel, and for the window cleaning all over the house. If one is planning for a housekeeper's position she should add a course of interior decoration to the institutional management course, so that managers may be influenced in having the furnishings of hotels harmonious and restful.

On each guest floor there is a floor desk, where a floor clerk is on duty from seven in the morning until twelve at night, with a change of watch twice during the day. These fifty floor clerks occupy important positions. The floor records are kept by the clerks, the mail for each floor is distributed from the floor desks, telephone and telegraph messages are received by the clerks, and they come daily and hourly into close contact with the guests. They must, therefore, be of good presence, tactful, often quick in decision, and courteous at all times and under all circumstances. They are also links between the housekeeping department and the front office. Their speedy report of rooms vacated and again made ready for incoming guests tends to lessen delay in the assignment of rooms. The head of the floor clerk department is a woman, and she and her assistants also have charge of the lost and found department. Hundreds of articles left in the haste of departure, or lost during residence in the hotel, are daily returned to the guests, be the guests far or near. Such a department encourages better morale on the part of the employees. They are less tempted to keep an article found, when they know it will otherwise be returned to the rightful owner from a department organized for that purpose.

Women do the day-time bookkeeping, and the cashiers are all women. As each bill is kept up "to the minute," literally, the bookkeeper's is no easy task, while the cashier must be ever alert with the change. This department has a woman head.

The controller of the hotel is a woman and about two-thirds of the employees in her department are women. She is responsible for the women restaurant cashiers, also. At the end of each day her department furnishes an account of all food sold during that day, so that the amount can be told in detail and in most instances the percentage of profit derived. This system tends to do away with losses because errors can be rectified at once instead of at the end of the month. The cashiers and checkers must do their work quickly, and you can realize how important it is to have it done correctly when three or four thousand guests are served in a day.

A few years ago I asked our chef why he did not have more women in the kitchens and pantries. He replied, "because they can not stand the heavy work and the heat, and besides they are a nuisance when working with men, as they either fight with them or fall in love with them, both bad conditions for work." But it happened that men fell to fighting each other, and the war had not progressed very far before the kitchens began to be short on men and long on women. They came into pretty nearly every department the chef controls, and with them came the sanitary inspectress. She is a woman who approached the manager and asked that she be allowed to try out sanitary work in the kitchens. A graduate of Teachers College, she was convinced that she could supplement the work of the employees in the kitchens. And she has succeeded most wonderfully. It was a bit startling to a French chef to have a woman, robed in white uniform and cap, come up to him, take hold of the towel he wore in his belt, shake her head and say, "Tut, tut, it will not do." Then she took it away from him and the performance never had to be repeated. She loves to tell the story of the grease man whose work is to dispose of the grease and scraps. He was inclined to spatter when she first made his acquaintance and, as their language was not the same, she had some difficulty in making him understand what she wanted him to do. The pantomime was very interesting for awhile. He had learned two English words, "hell" and "job", and as they were all he knew he frequently combined them for her. She only laughed and held her electric light—which he did not at all need—to encourage him. Then one day he began to grasp what she meant. He smiled and forthwith vied with other employees in keeping his corner washed and clean. She had given him a bit of education and taught him to respect his job. One day, while trying to explain to another employee that his work would not pass muster, she turned to find the grease man standing by evidently enjoying the talk. She said, "Oh, there's the grease man; he knows how things should be," and the grease man, his face wreathed in smiles, said, "No, no, now grease clerk."

Some paces beyond the grease clerk's office, girls dress the fruit and pastry plates, and assist with the cakes. When our inspectress came, these girls were coming to work unsuitably dressed for pantry work. She had them don white aprons—large ones to cover the entire dress—and wear dainty white caps as do the men. This innovation saved laundering of waists and prevented a possible hair or hair pin from finding improper harborage. In the next pantry girls make salads,

while beyond a girl is cooking buckwheat cakes. Girls assist in the silver pantry and in sorting and packing candies, after dipping chocolates or assisting in other ways in the candy-making. So girls and women have come into the kitchens and are making good, and the chef says he is glad to have girls take charge of the pantries, as he finds women are more careful and economical of the food they handle than are men. He thinks, too, they should prepare to be chemical analysts to work in the hygienic department and asks why they can not and do not make the cakes they like so much to eat. And why indeed? Surely no better training could be obtained by the girl or woman contemplating opening a tea room, than that in a hotel kitchen.

So good has been the work of the sanitary inspectress that, when the New York Board of Health waged its drastic campaign of inspection of hotels and restaurants, it rated higher than all others the hotel in which she has found opportunity to demonstrate her worth and ability.

One November on a given day at high noon, most of the waiters and many of the cooks in the hotel went on strike. In the course of a very few days their places were filled by women, and, for the first time in the history of metropolitan hotels, waitresses took the place of waiters. The Maitre d'Hotel has stated that it takes seven years to make a good waiter, yet in seven months they were replacing quite satisfactorily the seven year men. This was due rather to woman's ingenuity in performing the task at hand than to any educational background. Their shortcomings were those incident to lack of years of training, not to a lack of the right attitude of mind toward their jobs. The fact that they are come marks a new era, and they are filling well their places in the great hotel. There is a matron, with a university training, to guide, assist, and encourage them, and also a gentlewoman who acts as banquet hostess, looking after the banquet rooms.

The officers dining hall for employees is in charge of a college woman and she has several women assistants.

The telephone department is in charge of and operated entirely by women. Three thousand messages are averaged daily, with fifty-five women to handle them.

The publicity department, in which is filed letters asking for reservations, is in charge of women. Names and addresses are recorded on the addressograph machine, and are filed away in a cabinet to become a part of a mailing list running into the thousands. These names have constantly to be checked and rechecked, and are used when notices of

special dinners, celebrations, or conventions occur. Circular letters are sent out from this department, reports of other departments are made up here, and lists are filed territorially and by state, town, name, and number. It is one of the busiest departments in the hotel. There is an opportunity here for girls clever in composing circular letters and in designing attractive cards for special entertainments.

But what of the outside world, the great New York all about this great hotel?

Come to my office and find yourself on a woman's floor and in a new department created, at the opening of this hotel, especially for women. Seventy-five rooms given over to their exclusive use and a library available for all guests, parlors and a hairdressing parlor, together with the office, make it unique and like an exclusive woman's club. "Will women want a woman's floor?" the manager asked me when I approached him several months before the hotel opened, and begged to be allowed to be the hotel's hostess and guide for the stranger within the gates. "Let us see," I replied, and so it came about that I was to establish the only woman's floor in the hotel world. I sent out three thousand letters under my own signature announcing it, and these went largely to club women, schools, and colleges. The response came at once, for, not only have club women and college girls wanted it, but others have been waiting for it. To it come women from all parts of the world, live women, distinguished women, business women agog with the world's work.

Nor do I lack touch with the woman at home, for the tall, good-looking man, waiting his turn at the office door, hands me fifty dollars and asks that he be bought the prettiest blouse to be found, for the prettiest wife in Oklahoma, and "something a girl would like." He returns at evening to find his purchases awaiting him and is assured they may be returned if not satisfactory. But no purchase for the "woman at home" has ever come back. Nor is it less delightful to help select a seal coat "to surprise mother with" or to "slip around the corner," as he puts it, to Fifth Avenue with a charming young Southerner and give my opinion as to which of two engagement rings is the handsomer.

One gets some mental shocks at times. A woman asked one day what she could see in ten days that was worth while, adding that this was her first visit to New York, and her husband, who had been there before, was most anxious to bring her in order that she might see the Pennsylvania Railroad Station and the automat restaurant. A bridegroom

confronted me with a list of things he wanted "her" to see and I was rather surprised, after directing him how to find the Metropolitan Museum, to have him ask, "And where is the nearest and largest five-and-ten-cent store. I want her to see one of them. They are curiosities." They were on their way to find it, when a famous authoress laid her hand on my shoulder and asked the name of one of the characters in *Cymbeline*. It seemed a mental stunt, to go from a five-and-ten-cent store to Shakespeare, but so one is expected to dispense information.

My secretary supplements my work, while a librarian and playroom director looks after the books and the children. The library is available for all hotel guests, and an outdoor playground gives an overflow place for the myriads of children whose merry laughter attests their enjoyment of quarters especially their own.

So women work in the various departments of the Hotel McAlpin, and the associated hotels under the same management. Statistically the bureau of employment reports that the women average 60 per cent efficiency, and 75 per cent attendance.

I believe there are three "C's" for women to learn in business,—courage, courtesy, and coöperation. First we must have courage to find a job and the courage to keep it and make good on it, once it is found. We must also have courage to ask for and receive pay that is commensurate with our work, remembering we are usually taken at our own valuation of our services. Women should learn, too, to control money, so that they may be trusted to manage large investments as do men. Then we must be courteous to each other. This is, I think, more important than being courteous to guests. The latter comes naturally, the other must be rigidly learned. And last, we must lay hold upon coöperation. We must forget all personal things for the good of the whole, of which, after all, we are at greatest only a very small part.

Until women equal or excel men in work, they must be willing to complement men's work; and, after all, does not greater success come when work is carried on jointly by both men and women working harmoniously together? I am sure it has gone far in the success of the hotel with which I am connected. Hotel work is housekeeping on a larger and more systematic scale and, as women should be the natural homemakers and people come more and more to live in hotels, the opportunities in the work are manifold and limitless. The work requires patience, much tact, a sense of humor, and more good temper than any one mortal usually possesses.

THE CONTRIBUTION OF EUROPEAN EXPERIENCE ON LOW DIETS TO OUR TEACHING OF DIETETICS¹

AGNES FAY MORGAN

(Concluded)

Reduction in basal metabolism. A less obvious result of undernutrition was the generally observed lowering of basal metabolism which accompanied or followed the loss of weight. The most complete study of this point was made in the Carnegie nutrition laboratory by Benedict, Miles, Roth, and Smith (22). This well planned experiment was carried out on 24 normal young men, 12 of whom existed for four months on a diet providing only $\frac{1}{3}$ to $\frac{2}{3}$ their normal caloric requirement, and 12 of whom acted as controls on normal diet, except for a period of three weeks of lowered food intake. The results of this study may be summarized as follows:

1. There was a gradual reduction in weight on the lowered intake, till at the end of 3 to 10 weeks, an average loss of 12 per cent of initial weight was observed. The body weight remained fairly constant at the new level. The diet had at the same time been decreased from a fuel value of 3200 to 3600 calories down to 2300 calories net.

2. The average total heat output of the subjects measured by the gaseous exchange method, all subjects being massed in one respiration chamber, had decreased 25 per cent at the end of the weight reduction period.

3. The heat output per kg. of weight and per sq. m. of surface averaged 18 per cent lower than at the beginning. (Note that in Benedict's (23) study of a 31 day complete fast, the heat output measured in the same way had fallen 28 per cent.)

4. The nitrogen balance was negative throughout, the average total loss of nitrogen being 150 grams for each subject. The daily nitrogen output on the low diet was 10 grams, on normal diet 13 or 14 grams.

5. The pulse rate and blood pressure were lowered.

6. The skin temperature was slightly subnormal in some subjects; the rectal temperature remained normal.

The second squad on low diet for 3 weeks lost about 6 per cent of body weight.

¹ The first installment of this article appeared in the February number.

It is stated that in general the subjects felt no bad effects from the low diet, although they complained of cold and some lassitude. Some reduction in neuro-muscular activities of these men was noted by Dr. Miles, but no such marked decrease as was observed in the basal metabolism. An interesting phenomenon reported by this same investigator (24) is that of a marked lowering of sexual impulses in the subjects.

Zuntz and Loewy (16) had previously noted a relatively excessive lowering of energy production in their own metabolism after a body weight reduction of 10 or 12 per cent. They postulate a specific reduction in metabolism with relatively large decrease in active cell substance.

Jansen's (3) subjects with body weight not above 60 kg. on 2100 calories and 60 gms. daily protein intake reached stationary weight and nitrogen equilibrium. When only 1600 calories were given without decrease in protein ration, continued nitrogen loss was observed. A lowering of basal metabolism in each of these 13 subjects was noted.

Joffe, Poulton, and Ryffel (25) report a study of prolonged undernutrition in which the resting metabolism was as low as in complete starvation. The pulse was slow. They found no increase in efficiency during work as measured by the rate of increase in respiratory exchange at different rates of walking.

Efficiency during work on low diets. The result as to working efficiency reported by these English investigators is in accord with the experience of the German observers, but opposed to that of Benedict and his co-workers (22). Jansen (3) noted an actual decrease in efficiency in his subjects and much irritability and exhaustion following an enforced march. The increase above basal metabolism measured 12 hours after the walk and persisting for 24 hours, was in no case less than 30 per cent, and in at least one case was as high as 50 per cent.

Zuntz and Loewy (26) found an excessively increased consumption of energy during a similar march, and also during the period following this exertion.

The Boston investigators (22) report an increased efficiency in horizontal walking during the period of undernutrition. This gain over the normal was found to be 22 per cent of the total heat output after four months low diet, and 14 per cent after 20 days. Measured per horizontal kilogram-meter, the corresponding figures are 14 and 8 per cent. They conclude that a marked saving in energy requirement for walking may be ascribed to the use of reduced diet, whether the saving be considered on the basis of gross energy or requirement per horizontal kilogram-meter.

The discrepancy between these experimental results may possibly be explained as due to the difference in duration of the periods of under-nutrition observed. The German subjects had involuntarily subsisted for nearly two years upon the low diet while the American subjects had lived at this level for only four months.

It is possible that some vital stores in the latter had not yet been depleted, or that their condition had reached some intermediate stage favorable to economical oxidation, which had been passed by the German subjects.

The varying results of these investigators are not in accord with the work of Lusk and Anderson (27) on efficiency during muscular work following food ingestion. They have shown that for dogs, the quantity of energy needed to move a given body weight is the same regardless of the state of nutrition of the animal. Their dog performed 0.584 kilogram-meters of work to move one kilo of body weight one meter horizontally when fasting, and 0.580 kilogram-meters for a similar amount of work done by a well nourished dog.

War edema. A most interesting and widely observed symptom of partial starvation is that of edema. This phenomenon has been noted in many previous wars and in times of famine, but has appeared in the recent war in an astounding proportion of the population of certain countries. In the recent excellent review of the literature on this subject by Maver (29) attention is especially directed to the apparent fact that no specific vitamin deficiency is involved, but that low caloric intake is chiefly responsible. The complication of scurvy occurs occasionally in the course of the edematous disease, but according to Guillermin and Guyot (30), the two conditions cannot be considered as necessarily related. The wet type of beri-beri shows also a certain amount of edema, as does hydremic anemia. The latter disease is mentioned as of frequent occurrence among the victims of war undernutrition. Schittenhelm and Schecht (31) of Kiel, published five articles in 1919 on war edema, in which they describe their experiments to show that salt and water excretion was unimpaired, and that a marked decrease in the proteins in blood plasma usually occurred. They believed either the excess of carbohydrate or the shortage of fat and protein, or both, may be the cause of the water retention. They state that this disease is comparable to the "mehlnahrschaden" of children fed on carbohydrate-rich and fat-poor patent foods.

Bigland (32), who studied the edema found among British troops in the East, in India, and in Turkish prisoners of war, believes this symp-

tom due to hyperactivity of the supra renal glands induced by starvation, and that the second stage may be pellagra. Maase and Zondek (33), Lange (34), and Knack and Neumann (35) describe the suddenness and apparently epidemic character of this dropsy as it appeared in Poland and in Germany in 1916 and 1917. It was most severe among prisoners of war, inmates of institutions, and men who were forced to do hard work, exposed to the cold on low diets with little fat and protein. Bed rest or increase in the amount of fat in the diet or both were found to effect rapid cures. Most of the authors believe that kidney excretion is not at fault in the causation of the disease.

The experimental edema recently described by Kohman (36) was produced in animals on very low protein diets of a fluid character. Foods yielding acid oxidation products tended to produce the edema more readily than others, and high salt intake had a somewhat similar effect. The conclusion drawn is that the low protein and total energy and high water content of the diet rather than high carbohydrate or low fat are to blame. This is not in accord with the statement by Hülse (37), who studied edematous cases over a number of years, that high protein diet leads to more edema than carbohydrate diet of the same caloric value. Nitrogen retention on high protein diet was shown by blood analysis to be due to interference with the process of deamination. The author supposes that some abnormal intermediary substances formed during amino acid metabolism are responsible for the unusual water retention.

It is probable that some tenable physico-chemical explanation will be forthcoming eventually to explain the occurrence of water retention in such widely varying conditions as hydremic anemia, starvation, beriberi, nephritis, pregnancy, infantile gastro-intestinal disorders, and scurvy. The infrequency of edema with the acidosis of diabetes renders somewhat doubtful Martin Fischer's (39) well known theory that all edema is due to colloidal tissue swelling in the presence of increased concentration of the hydrogen ion.

Effect upon diabetes, gout, and cancer. A striking comment upon the effects of war diet found occasionally is that concerning the so-called metabolic diseases. Diabetes, gout, eclampsia and cancer were found in Germany at least to have decreased in severity and frequency during the war period. Magnus Levy (39) says that the increase of deaths from diabetes in Germany from 1900 to 1914 was from 245 to 444 per year. From 1915 to 1918, the number decreased to 202. He believes that the former rapid increase must be ascribed to over-eating. Loewy and

Strauss (40) and Determann (28) mention not only the decrease in the number of cases of diabetes and gout, but the decrease in the severity of old cases. Similar observations have been made in England and France.

The bearing of this curious relation upon the often repeated saying that these are diseases of plethora is self evident. One wonders, however, whether the net result to the public health should be struck in favor of the underfeeding with its inevitable tuberculosis, edema, and rickets, or the overfeeding with its possible cancer, diabetes, and gout.

Effect of inadequate protein feeding. Practically every study of nitrogen balance reported shows constant and often large body nitrogen loss on the war rations. Some of the studies were made in nutrition laboratories, some in prison camps, and some in hospitals. Since so little of the protein available in the diet was of animal origin, not much attention was paid to qualitative differences in the nitrogen sources. The already quoted experiments of Zuntz and Loewy (16, 26) and of Jansen (3) deal with body nitrogen loss in some detail. Jansen's subjects were losing about 2 gms. of nitrogen daily with an intake of 60 gms. of protein and 210 gms. of carbohydrate, yielding 1600 calories. When 500 gms. of lactose were given in addition, nitrogen equilibrium was nearly attained. Kestner (41) fed six undernourished patients in a German hospital 110 to 120 gms. of meat in addition to the regular hospital diet, and found a large positive nitrogen balance with an intake even as low as 8 gms. of nitrogen. On 12 or 13 gms. of nitrogen, a retention of 6 to 9 gms. was observed. He concludes that the protein depletion in these subjects on war diet must have been extreme. A French observer, A. Benoit (41), who was long a prisoner in Germany, carried out nitrogen balance determinations on 78 Russian prisoners for 16 months. The average daily ration contained 48 gms. of protein, 14.6 gms. of fat, and 332 gms. of carbohydrate, yielding 1702 calories. No loss of body weight and no nitrogen loss or disturbance of any kind was observed in the 78 subjects. The protein in the food was distributed as follows: 49 per cent from bread, 23.3 per cent from cheese, 16.3 per cent from meat and fish, 11.5 per cent from various vegetables such as potatoes and beets. This total per cent of 39.6 from animal sources is generous indeed, even though the energy supplied in the ration is small. It is probable that very little physical exertion was undertaken by these subjects. The average figure given by Benoit, 0.72 gms. of nitrogen per kg. of body weight, is a lower minimum than that usually quoted. Although nitrogen equilibrium has many times been demonstrated on

0.6 and even 0.5 gm. per kilo, the experiments have seldom included definitely restricted caloric intake.

In the exhaustive experimental study by Benedict and others (23), each of the subjects lost from 1.5 to 4 gms. of nitrogen daily over the whole period of 4 months. The total losses were from 130 to 252 gms. The authors believe that the nitrogen lost in this way represents compounds found in the fluid bathing the cells, so-called "surplus nitrogen," and the loss of which accounts for the lowered basal metabolism observed. Furthermore, they claim that the frequency with which nitrogen equilibrium was attained on an average intake of 1950 calories and 10 gms. of nitrogen furnishes further evidence in support of Chittenden's low protein theory.

The articles by Hindhede (7) in connection with this same controversy are most interesting. He has frequently compared the plan of food control in Denmark with that used in Germany to the evident disadvantage of the latter. The Danish food board, made up of four farmers and four scientists, refused to allow the farmers to feed grain and potatoes to animals, and therefore insisted on a very great decrease in the number of pigs and cattle raised. As a result meat was scarce but breadstuffs and potatoes were plentiful. Hindhede (42) reports a striking decrease in mortality in Copenhagen during the war, which he attributes to the low protein vegetarian diet thus enforced. The principles assumed by the Danish government on his recommendation were:

1. No attention need be paid to the nitrogen minimum, since it can not be reached for human beings if enough calories are given.
2. Fat is not necessary.
3. Bran is a valuable food and well digested by man.

One need hardly point out the debatable character of these assumptions. At any rate under such a regime, and with a partial condition of alcohol prohibition, the death rate in Copenhagen for men 25 to 65 years of age fell 34 per cent and for women 17 per cent. This is compared with the greatly increased death rate in Germany where the Voit-Rubner standard of higher protein was in effect. The difference lies probably chiefly in the level of caloric intake available to the population of the two countries rather than in the character or quantity of the protein. Rubner (44) and other German physiologists are still convinced apparently that an excessively low nitrogen content in the diet is inadvisable, even though a German scientist is quoted by Taylor (45) as saying in 1917 that the Chittenden standard of feeding was as valuable to the

German nation as the Hindenburg standard of fighting. Perhaps this opinion had a new and different meaning in 1919.

The carbohydrate in war diet. An excessively large proportion of the food accessible to the European population during the war was made up of starch and cellulose. Sugar was scarce after the first year, and for sweetening saccharin was widely used. This had long been more generally in use in Europe than in America, but during the war it became a staple part of the cook's equipment. It is reported to be the custom there even yet to carry a bottle of saccharin tablets in one's pocket to sweeten the food obtained in restaurants. Such a widespread and prolonged experiment in the use of saccharin without reported detriment to health will tend to establish the sense of safety in the use of the sweetening substitute for diabetics, or for economy in such times of sugar shortage and high prices as we have recently witnessed.

The use of a diet made up more largely of carbohydrate than was formerly considered normal is blamed by Loewy and Brahm (5) for much of the edema, gastro-intestinal disturbances, and lowered resistance so widely observed in Germany. They state that the average war diet contained, instead of the usual 60 per cent, 68 per cent of total calories as carbohydrate in April, 1916, and 70 per cent or more in April, 1917. Much more than the usual proportion of this carbohydrate was from bran and similar indigestible substances.

It is interesting to speculate as to the possible relation of this preponderance of carbohydrate to the decrease in occurrence of diabetes. To be sure, the amount of sugar consumed was greatly lowered even though the total amount of glycogenetic food was increased. This makes no less puzzling the contrast in frequency of diabetes among the carbohydrate-fed natives of India, for example, and the Germans on war diet. The determining factor of course may be the total quantity of food available rather than the relative amount of carbohydrate. It must be remembered that the diabetes observed in India by McCay (46) is said to be confined largely to the over-fed upper classes.

Gastro-intestinal disturbances. The evidence as to interference with normal digestive activity by the unusual character of the war diet is somewhat conflicting. In England the considerable amount of complaint of diarrhea and fermentation resulting from the use of the bran-containing war-bread was described by Hutchinson (47) as due largely to other causes. Kraus (48) and Loewy and Brahm (5), at the end of the war, stated that gastro-intestinal disease had been greatly increased

among civilians in Germany by war diet. In the letter to the Journal of the American Medical Association (18) from Vienna in December, 1919, however, it is stated on the authority of T. Weiss that a marked decrease in diseases of the digestive organs and in gout and diabetes had occurred, although rickets, edema, osteomalacia and tuberculosis had greatly increased. On the whole the impression gained from the literature is that of noticeable increase in diarrhea, flatulence, intestinal catarrh, and similar evidences of the effect of a largely vegetarian diet.

The minimum fat requirement. One of the first foods to become scarce in Europe was fat, and as the war progressed, the fat shortage became one of the most troublesome features of the war diet. Taylor (45) has described the acute situation in this regard as it existed in Germany in 1916, and even in England the provision of fat of any kind was a difficult problem. Hoover (15) mentioned the experience of the Belgian Relief Commission in providing 40 gms. of fat daily for the Belgian populace. This amount was apparently enough for the maintenance of health in all but adolescent children, who rapidly fell victims to tuberculosis until this was checked by increase in their fat ration. Starling (49) discussed the problem of fat in the diet from the point of view of dietary statistics with the conclusion that the continental standard of 18.4 to 29 per cent of calories from this source was not excessive. This is contrasted with the 34 to 39.4 per cent from fat in American dietaries. The Inter Allied Food Commission, in 1918, laid down 75 gms. as the minimum of fat in 3000 calories.

Some of the authors, as noted before, ascribe the edema of starvation to lack of fat, and Aron (50) and Stepp (51) have been particularly emphatic in the claim that fat foods are indispensable in the diet for other reasons than their possible vitamin content. The psychological value of fat in the diet for the prevention of early hunger, its culinary value, and its service in decreasing the bulk of the food, are all excellent reasons in themselves for the desperate attempts that were made to retain some fat in the war ration. The most important function of fat-containing foods seems, however, to be that of furnishing the so-called fat-soluble vitamins. It is difficult to discuss the effect of either fat-poor or salt-poor diets without at the same time considering the rôle of this vitamin.

Bone diseases. Disturbances of bone growth and function, such as rickets, osteomalacia and osteoporosis are reported as greatly increased in frequency in Germany and Austria, and even in England the problem of the prevention and cure of rickets has become serious. The dietetic

treatment of these diseases consists usually of the addition of cod liver oil, milk fat, phosphorus, and calcium to the usual fare. Whether such therapy is effective because of its fat-soluble vitamine, its fat, or its calcium and phosphorus content, there is little uncontested evidence.

Engel (52) of Westphalia in a recent interesting communication to the *Lancet*, states that a shocking proportion of children there under ten years of age are deformed as a result of persistent rickets. He estimates that ten per cent of the young children are, or have been, actively rachitic. Infants, on account of more prevalent breast feeding, have apparently been in a more favorable position than older children, since the infant mortality has fallen in about the proportion in which the mortality of children two to five years old has risen. This greatly increased spread of rickets is ascribed to lack of milk and other animal foods. The recent vigorously pursued theory of E. Mellanby (53), that rickets is caused directly by the absence of an antirachitic food factor similar or identical with the fat-soluble vitamine, is supported by these facts.

Koepschen (54) has reported an endemic bone trouble among adults in Vienna and in the German cities, accompanied by edema, pains in the bones, and hemorrhagic tendency, which was being treated by the administration of phosphorus and calcium salts, since cod liver oil is unobtainable. He cites 19 reports on the subject in German journals.

Two reports on osteomalacia, those by Alvvens (55) and Böhme (56) are of interest in that they emphasize the close relation between this disease and rickets. The overshadowing importance of the internal secretion of the ovaries in the causation of osteomalacia is brought somewhat into question by the large numbers of cases among undernourished men as well as women, and by the speed with which the condition is reported to yield to cod liver oil treatment.

An interesting article by P. Grabley (57) in 1919 ascribes the war edema as well as endemic bone trouble and growth deficiency to faulty mineral metabolism and to insufficient salt intake. He makes some general statements about the physico-chemical relations of the electrolytes to inactive purely organic substances in regulating the volume of body fluids. It seems that inorganic calcium compounds and other salt mixtures were widely used in nearly all European centers in the war bread in an attempt to supply the elements which the lacking milk, eggs, vegetables and meat usually provide. If Grabley's statement be accepted, this inorganic substitute was not altogether sufficient.

Occurrence of scurvy and other deficiency diseases. As might be expected, a considerable incidence of scurvy, beri-beri, and pellagra was noted

among both civilians and troops. An excellent survey of reports of scurvy epidemics during the war was given by Hess and Unger (58) in 1919. Most of the cases among soldiers were found in the Italian army, in British troops in Macedonia, in South African labor troops, among German prisoners in Turkestan, and among Russian prisoners in Germany.

The well known researches carried on at the Lister Institute on the antiscorbutic factor in food seem to have been inspired chiefly by the appearance of scurvy in the British army in the East. The British government in 1917 sent a corps of gardeners to Mesopotamia to plant vegetables for the use of the troops there in the effort to curb the spread of this disease.

Most of the scurvy in Germany as reported by Morawitz (59) occurred among civilians although some cases were found among soldiers on the Eastern front. An increase in the incidence of infantile scurvy, however, appears to have occurred in all the central countries. Tobler (60), Epstein (61) and Pollak (21) report from children's hospitals and orphanages in Berlin and in Prague, a large number of cases of Barlow's disease among children two to fifteen years of age, an age group heretofore practically free from scurvy. They ascribe this condition to the long continued diet of dried and otherwise preserved foods as well as to the lack of fresh and unheated food.

Pickens (62) referred to 50 cases of scurvy in four months as treated at the Poor Law Hospital in Glasgow, and Harlan (63) to 16 cases in three months at Newcastle. This unusual number of scorbutic sufferers were nearly all middle aged civilians, mostly men who lived alone and who evidently had been living largely upon cereal foods as a result of the shortage of potatoes.

Beri-beri is reported as having appeared chiefly among colonial troops from the far East who subsisted upon rice and similar restricted diet, and pellagra among Italian and British troops in the East. The recently published report (64) of the Medical Research Committee in England on accessory food factors contains much interesting and illuminating material upon this subject. The chief dietetic reason to which the committee seems inclined to ascribe the appearance of pellagra is that of low protein of poor quality.

It is impossible here to do more than refer to the greatly increased volume of research upon the vitamine content of foods and the causation of the so-called deficiency diseases which has been stimulated by war

necessity. The more obvious references, of course, are to the work on the anti-scorbutic factor carried on under the direction of Dr. Harriette Chick at the Lister Institute in London; that on the fat-soluble vitamine content of foods by Drummond at the Cancer Research Institute; the work on pellagra by Bigland and Enright of England, and Volpino of Italy; on the antirachitic factor by Mellanby; as well as the well-known work along similar lines in our country by Osborne and Mendel, McCollum, Steenbock, Underhill, Williams, Hess and Unger, and a long list of others. Attempts at quantitative measurements are being made by many of these investigators, and a little of the haze which befores our vision of this subject is being dispersed.

To the student of dietetics, little that is really new can be said to have been brought forward by the war underfeeding of Europe. However, a wealth of valuable confirmatory data has been accumulated, and valuable illustrations from the war history will undoubtedly become part of our teaching and lecturing lore. The stimulation of interest in the problems of human nutrition which this great experiment has brought about is of course the chief item upon the credit side of the war diet experience. It remains for those who are concerned with the development of education in these matters to make use of the material so lavishly provided by the necessities and privations of war.

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THE HIGH SCHOOL CLOTHES LINE

FROM THE HOME ECONOMICS DIVISION, IOWA STATE COLLEGE, AMES

Stage Setting: Living Room

Group of High School Girls

*[Katherine and Ada on davenport]**Characters:* Katherine, in wool middy outfit

Ada (short, stout), in made-over dress

Genevieve, in wash middy and dark skirt

Helen, in shirtwaist and skirt

Dorothy (athletic), in sweater and plaid skirt

Models:

- No. 1 Short, stout—coat too small, dark dress, white shoes
- No. 2 Small—white middy, blue collar, dark skirt
- No. 3 Frivolous—middy, plaid skirt, jewelry
- No. 4 Made-over dress
- No. 5 Tall, stout—blue tricotine, one-piece dress
- No. 6 Large—brilliant red dress
- No. 7 Tall, round-shouldered—eton dress
- No. 8 Frivolous—georgette, French heels, etc.
- No. 9 Neat—well-pressed clothes
- No. 10 Model No. 2, with apron over school dress
- No. 11 Neat house dress
- No. 12 Kimono, bedroom slippers, cap, etc.
- No. 13 Run-over heels, careless
- No. 14 Hairdress exaggerated
- No. 15 Hairdress neat, becoming
- No. 16 Evening dress, extravagant
- No. 17 Short—organdy, vertical lines
- No. 18 Tall—organdy, horizontal lines
- No. 19 White organdy, horizontal lines
- No. 20 White voile
- No. 21 Colored voile
- No. 22 Colored organdy
- No. 23 Silk dress

Katherine. Ada, I am to have an allowance for my clothes, too.

Today is the first I every knew how much money Dad makes. His income is about \$2000 a year, and there are five of us. Mother and I talked over my clothes for next year and I am going to do

all my own planning. They are going to give me an allowance of \$135 for my clothes.

Genevieve. My, that's not much! I saw a swell winter coat marked \$135, and I tried to make Dad get it for me.

Katherine. I think it's a lot. It's really more than my share, for Dad explained to me all about our family budget. We have just about \$170 each month for everything. Our rent is \$40, and Mother says that now we have no garden it takes nearly \$60 for food.

Genevieve. Can't you spend all the rest for clothes?

Katherine. Mercy, no! Dad says he must save \$25 a month, and then there are electric light bills, telephone, gas, laundry, newspapers and magazines—an awful lot of things. Thirty-five dollars a month is what Mother plans for clothes, and that leaves only \$11 for all those other bills. Honest, I don't see how Dad ever has any money for movies, or anything like that.

Genevieve. Oh, I can get anything I want, if I just tease hard enough.

Ada. I don't think that's right. That's selfish. You get more than your share and somebody in the family gets left out.

Genevieve. Well, maybe it is. But Dad never talks things over with us. I don't believe Mother knows how much money he makes. We just spend all he'll give us.

Ada. Do you girls remember what I did the first year with my allowance? I shall never forget how I wanted white kid shoes. Father said we positively could not afford them. When I got my allowance, the very first thing I bought was the white kid shoes. I never thought about needing a winter coat. When it was time to get one, I didn't have any money left. Mother said I must keep to my allowance, so I had to wear my old military coat which was too small. [*Model 1.*] Do you remember?

Katherine. But you had your white shoes.

Ada. Yes, but I did not have a thing to go with them. White shoes look awful with dark dresses.

Katherine. Ada, this is the way I am going to start. I am to get \$11.25 every month. The first thing I bought is this middy. How do you like it? [*Katherine stands and turns for inspection.*]

Girls. Isn't it good looking? How much did it cost?

Katherine. The whole \$11.25, but it is all I am going to get for school until after Christmas. I have some wash middies like yours, Genevieve, and this skirt is made out of one of Mother's. [*Model 2.*]

Genevieve. Speaking of middies, isn't Marguerite the limit, the way she fusses up? Who ever saw a sailor all decked out in jewelry, with his necktie spread out, and plaid trousers? [*Model 3.*]

Ada. I feel differently about made-over clothes since I have a budget. How do you like my dress? [*Ada stands and turns.*]

Genevieve. Is that a made-over?

Ada. Yes, and I'm proud of it. Mother is an old peach at fixing things up. She is a regular camouflage artist. [*Describes dress and gives cost of new material.*]

Katherine. I'm going to get busy and make some clothes for myself. It'll make my money go farther. Remember that old plaid skirt of mine? Well, there's a skirt of Mother's too, that got torn. I'll bet I can put the two together and make a dress that looks as good as yours, Ada. Let's find a good pattern. [*Model 4.*]

Ada. I've been sewing, too. Bloomers! Good long ones! Warm woolly jersey ones! I tell you, I'm going to be comfortable this winter. No more freezing for me. [*Lifts skirt and shows bloomers.*]

Genevieve. Don't tell me you're going to wear long underwear! If you do, Mother will make me, sure.

Ada. I should say so.

Katherine. We really ought to, girls. I was frozen all last winter, only I wouldn't acknowledge it. I know that was why I got the "flu."

Ada. I like bloomers anyway. I can climb around all I want to when I have them on.

Genevieve. Have you seen Louise's new dress? Doesn't she look well in it? She is so large and tall, but you hardly realize it when she wears that dress. [*Model 5.*]

Ada. I wonder why.

Genevieve. I guess it is because it is dark in color, and fits loosely. Those side pieces seem to do something, too. Wasn't that a funny story that the clothing specialist told us about a large girl who loved to wear bright colors. It reminded me of Ruth in her red dress. [*Model 6.*]

Ada. What was it?

Genevieve. A large girl went to a dressmaker to get a red dress made. The dressmaker said she would make her a pretty brown dress and trim it with henna, but the girl still insisted on the red dress. Finally the dressmaker told her that nature dressed the larger

animals in neutral colors, but the small dainty creatures have color to make up for their lack of size. The elephant always wears taupe, while the humming bird wears brilliant colors.

Katherine. Emma's new eton dress is real camouflage. It covers up her round shoulders. The loose jacket and wide belt fill in the hollow back. [*Model 7.*]

Ada. Here comes Helen. I never could look so nice as that in a shirt-waist and skirt.

Helen. I heard you girls talking about my waist. Mother doesn't allow me to wear georgette waists. But I do want to show you my new shoes. Aren't they good looking?

Katherine. Do you like those heels?

Helen. You bet I do. You can walk miles without getting tired. Mr. Smith, the shoe man, told me all about this straight last. It is the only kind of a school shoe. How do some girls wear those horrid French heels? [*Model 8.*]

Genevieve. Well, I never thought I'd come to it, but I'm wearing that kind and I like 'em, too.

Katherine. Look, everyone of us has on the same kind of shoes. Aren't we getting sensible!

Ada. My, that's a good-looking skirt, Helen!

Helen. I've just spent hours pressing it. No matter how nice your clothes are, if you don't press them they don't look right. "Well pressed is well dressed," you know. [*Model 9.*]

Genevieve. You're right, Helen. Some girls look as if they slept in their clothes. Mary Jones just steps out of hers at night and they "sure" do look it. She doesn't have a single clothes hanger. Her Sunday dress is all out of shape. It looks as if it hung on a nail, the way it is punched out in the back.

Katherine. You have to keep them clean, too. Mother says avoiding spots "beats" removing them. I always wear an apron when I am helping with the dishes. Right over my school dress. [*Model 10.*]

Helen. I wear a house dress on Saturday morning. It is just great to work in, and I can answer the doorbell without being ashamed. [*Model 11.*]

Genevieve. I stayed with Mary Jones last Friday night, and you should have seen her trying to work Saturday morning in her kimono and breakfast cap. She certainly was a scream. [*Model 12.*]

Ada. I am not surprised at Mary Jones' doing that; she always looks so shabby. Her shoes are run over at the heels and always muddy because she won't wear rubbers. [*Model 13.*]

Helen. Dad is a stickler about shoes. He says repairs and polish keep our bills down. Shoes and hats dress one up, don't you think?

Ada. Girls, I did get a coat *this* winter. [*Pause: Ada gets coat and tries it on.*] How do you like it? It cost \$35. I saved three months of my allowance last summer for it. [*Gives merits in detail.*]

Katherine. Let's see your new hat.

Ada. O, this one? It's my last year's one reblocked. [*Ada gets hat.*]

Katherine. Let me try it on.

Dorothy. [*Entering.*] Hello, girls, what are you talking about?

Girls in chorus. Clothes! and hats!

Genevieve. That's a good-looking hat of yours, Dorothy.

Helen. How would I look in Dorothy's hat?

Dorothy. You couldn't wear it.

Helen. Why not?

Dorothy. You never could get it on over that hair.

Helen. [*Tries to put on hat.*] I guess you're right. I wish I could wear a hat like that. It's so pretty.

Genevieve. That's what you get by wearing your hair in that ridiculous way. Helen sits in front of me in school and I just can't see around those huge puffs.

Katherine. Would you like to see the silhouettes from our class party? They are a scream! Guess who this is. [*Holds silhouette A.*]
[*Model 14.*]

Dorothy. Ruth?

Katherine. No.

Genevieve. Nelle?

Katherine. No.

Ada. I bet it is Alice.

Katherine. We all comb our hair alike, but you are all fooled. It's I.

Dorothy. That's right, you did comb your hair with such big puffs. But it's lots more becoming now. Why did you change?

Katherine. Brother kidded me so much that I finally changed it to please him, and everybody tells me it is better this way.

Ada. Your face is too narrow for such big puffs.

Katherine. Who is this? [*Holds silhouette B.*]

Helen. It's Sylvia. [*Model 15.*]

Katherine. You are right. She—

Genevieve. She certainly combs her hair prettily. Mother said she made the best appearance of our whole class.

Helen. I don't suppose you *old critics* approve of me.

Ada. Your ear bobs are too big for your face.

Helen. Thank you!

Genevieve. Helen, you need not get peeved, it's the truth.

Katherine. Let's change the subject before we scrap.

Dorothy. Girls, what are you going to wear to Mary's party?

Helen. Eloise is going to doll up in her evening gown. Some gown! You'd think she was a silly butterfly. [*Model 16.*]

Ada. I am going to wear my orange organdy. [*Model 17.*]

Dorothy. Those up-and-down lines do make you look taller, and orange is good with your complexion.

Ada. I do like orange for a change. I get so tired of just blue and pink.

Genevieve. Josephine is going to wear her organdy, too. The bands make her look shorter. [*Model 18.*] And Sue is going to wear her graduation dress. [*Model 19.*]

Helen. The seniors certainly looked fine. I like white best, myself, but it was pretty to have some of the girls wear colored organdies and voiles for graduation. [*Models 20, 21, and 22.*]

Genevieve. Helen, did you really make that silk dress you wore last Sunday? [*Model 23.*]

Helen. Yes, "Simplicity is the keynote," as Miss Smith says.

Genevieve. Going back to allowances. Katherine, what did you say your father allows you for your clothes?

Katherine. \$135, that is, \$11.25 a month.

Genevieve. Do you have to get shoes, stockings, and everything?

Katherine. Yes.

Ada. I do it, and it really works. Come over and I will show you my budget book.

Genevieve. I am going home and persuade the folks to put me on an allowance. It will make it so much easier for me when I go to college.

Curtain

FOR THE HOMEMAKER

A BRIEF HISTORY OF A CHILD WHO HAS NEVER BEEN ILL

JESSIE RICH ARMS

The little child is just twenty-eight months old and of the weight and height required by the standard score-card of the American Medical Association for the normal child of that age.

She was born during the frightful "flu" epidemic which swept the country in 1918 and caused the death of the attending physician ten days after the child was born. Her weight at birth was four and one-quarter pounds; a day nurse only was available, and that for a short time; and the case was dismissed from the hospital on the fifth day because of the large number of influenza patients there. At the end of the third week her father came down with the "flu;" any sort of nurse was entirely out of question; and help in the kitchen of a reliable or safe character was transitory.

Thus the tiny life began in contrast to the careful preparation made for her coming. The best hospital accommodations had been secured, and help at home to care for the bedding and clothing had been selected after careful testing for the social diseases so common among help in the South. However, the child inherited a good constitution, and, despite the fearful conditions, the essential factors of child welfare could be controlled and enforced, and at twenty-eight months she has never been ill.

The mother was able to feed her in part during the first twelve months. The supplementary food was modified cow's milk and after the eighth month small quantities of orange juice. The milk was special baby milk with low bacterial count and modified to a given formula with boiled water and cane sugar. The nipples, bottles, milk, and baby were never entrusted to the colored help, but were looked after by the mother. The feedings were given at regular intervals and, after the eighth week, on the four-hour schedule.

At thirteen months the child was taking whole cow's milk and was ready for strained oatmeal and egg yolk. Gradually spinach, string

beans, peas, carrots, and prunes—all strained—were added to her diet with dry toast or stale bread, baked potato, fruit gelatin, and baked apple.

After the middle of the second year (20 months) her menu could be formed from the following simple dishes, with the addition of one quart of milk a day: string beans, peas, spinach, carrots, baked potato, scraped beef, chicken, lamb chops (all meats in very small amounts), eggs, cream vegetable soups, prunes, orange juice, pineapple juice, baked apple, cereals (well cooked), gelatin, custard, and tapioca. Her schedule would present some such form as the following:

7.00 *a.m.*—Warm milk, 8 ounces; oatmeal (well cooked), 3 tablespoonfuls with 2 tablespoonfuls milk; toast, 1 slice.

10.00 *a.m.*—Orange juice, 4 tablespoonfuls; 1 thin slice of bread and butter.

12.00 *m.*—One egg (soft cooked); string beans (cut), $\frac{1}{2}$ cup; $\frac{1}{2}$ baked potato; gelatin, $\frac{1}{2}$ cup; milk, 8 ounces.

3.30 *p.m.*—Milk, 2 ounces; 1 graham or arrowroot cracker.

6-6.30 *p.m.*—Cereal, 3 tablespoonfuls, with 2 tablespoonfuls milk; toast, 1 slice; milk, 8 ounces.

The menu provides from 1000 to 1100 calories fuel value, or about 40 calories per pound of the child's weight.

At present the schedule is very similar with the addition of well-cooked rice, bacon, asparagus tips, and homemade ice cream. The little girl has a great liking for the green vegetables and often says, "More beans, more beans, please." She has never had a piece of candy and does not get "tastes" from the adult table. The other day she asked for a piece of tuna fish and was told that fish was not for little girls but for daddy and mother. "All wite, I have fish when I get big," and nothing more was said.

The child has always had her own bed, and has always slept alone in a room opening onto the sleeping porch. The door from her room to the porch is always left open, and often as she is tucked in at night she says, "Fresh air, more fresh air." She takes a nap in the middle of the day, directly after her dinner, and goes to bed at seven o'clock.

From the time this little girl has been able to hold up her head, her father has romped with her in the late afternoon before supper time. She is not afraid when he picks her up by her feet or tosses her across the bed, but says, "More, more, Daddy, do it again."

She enjoys the daily bath which is given before the midday meal. Her clothing is simple and suited to the southern climate. Rompers and overalls are worn during the morning and in the afternoon if the type of play calls for them. Another factor in her good health is the fact that she has not been turned over to the care of a nurse maid.

And so for twenty-eight months this little girl has enjoyed perfect health. The diet prescribed by her physician has been carefully followed; she has had fresh air, plenty of sleep, the daily bath, and exercise. She has never been dragged out to a "movie" nor had her regular habits infringed upon to suit some other program, and she has had close supervision of all the details of child life, while her parents have had the pleasure of watching her development day by day.

TEA¹

SUSANNAH USHER

(Continued)

INDIA, CEYLON, JAVA, AND SUMATRA TEAS

The teas of India, Ceylon, Java, and Sumatra may be grouped together for several reasons.

The plants raised in these countries are Assam indigenous or a hybrid which is a cross between Assam indigenous and the Chinese varieties. Assam indigenous is most generally used.

They are raised, manufactured by machinery, and packed for shipment on large plantations owned for the most part by English or Dutch stock companies.

The machine manufacture may insure cleanliness, but it helps to produce a tea that has a large amount of tannin and body at the expense of mellowness, fine flavor, and good keeping qualities. Some experts think that India and Ceylon have not as yet imitated the finest grades of China teas, but this opinion is not so generally expressed as it was 15 or 20 years ago.

India and Ceylon are studying scientific methods of growth and manufacture, but sufficient knowledge has not been accumulated to make tea production an exact science.

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As the methods of manufacture are similar in India, Ceylon, Java, and Sumatra the following description will suffice for all of them.

Plucking. The standard pluck is two leaves and a bud, that is, the flowery pekoe or bud, the first leaf or orange pekoe, and the second leaf or pekoe. The plucking of more leaves makes a coarser tea.

Withering. When the plucked leaf is brought in it is spread on large trays made of kissan cloth or other material that will allow free access of air. These trays are put on racks, and the leaf is withered by means of warm air circulated by fans. If the natural method is used the leaf is spread thin on withering floors.

Withering renders the leaves flaccid for rolling, but this is not the only change that takes place. According to investigations made for the Ceylon companies the leaf, during withering, loses water, and the oxidizing enzyme, the soluble matter, and the essential oil increase in amount; in consequence the leaf begins to change color, and to have an agreeable odor.

Rolling. The rolling is done by machinery instead of by hand. The twist is the most obvious result of the rolling, but various chemical changes take place. During the rolling the juice is brought to the surface, which facilitates oxidation. Tannin bodies undergo partial oxidation and the essential oil is increased.

Oxidation or Fermentation. The balls of rolled leaves are broken up in a machine made for the purpose, and the separated leaves are spread on tables or floors in a cool fermenting room. The oxidation continues until the leaf is a bright coppery tint. Various chemical changes take place which are not all well understood. Flavor is developed with the increase of essential oil, and color and body are developed with the oxidation of tannin. If too much tannin is oxidized, the tea has color and body at the expense of pungency.

Firing or Drying. The firing takes place in large machines or ovens fitted with trays to contain the tea. The temperature of the machine varies during different stages of the operation, the initial temperature being highest. Although the main object of firing is to stop fermentation and dry the tea, other changes take place which improve the quality of the tea.

The grading is done by sieves and the grades are usually named as follows, beginning with the finest: flowery pekoe, orange pekoe, pekoe (nos. 1 and 2), and pekoe souchong. The flowery orange pekoe contains the smallest, youngest leaves and many yellow tips; the orange pekoe

contains the next in size, and so on through the different grades. The yellow tips grow less and finally disappear in the coarser qualities.

As the modern methods of sieving, and cutting the leaf in equalizing machines makes it possible for older and younger leaf to get somewhat mixed in the above grades, it is not exactly true to say that flowery pekoe contains only the buds and small leaves.

Teas containing yellow tips bring a price out of proportion to their real value as they affect the looks of the tea rather than its "cup qualities." The buds and young leaves give rise to yellow tips, but careful manufacture, season, and district all affect the result.

The different estates all use the same grading, but the same grades may vary in quality; for instance, the pekoe from one estate may be equal to an orange pekoe from another. The term orange pekoe as used on the retail market seems to be simply a trade name for India and Ceylon tea containing tips, and is not a definite grade.

After sorting and grading, the teas are packed for shipment.

If the tea is packed warm it keeps better as no moisture is present.

Green Tea Manufacture. In India and Ceylon steam is used to stop the action of the oxidizing enzyme, the leaf is then rolled, fired, and sorted. The teas are made in imitation of China and Japan styles, but the quality does not as yet equal the teas of those countries, although Ceylon greens are improving in quality.

The teas of India and Ceylon are raised on large plantations owned and operated by English stock companies. The first English plantations in India were established about the middle of the last century, and in Ceylon somewhat later. The tea industry of India and Ceylon has made rapid strides in gaining the markets of the world. To raise money for advertising, a tax is levied on every pound of tea exported.

The northern tea districts of India are in the hills at the foot of the lower ranges of the Himalayas, and in the Brahmaputra Valley. The southern districts are mainly in Travancore.

In the northern tea districts the leaf is picked, after a winter resting period, from March to November; but in the southern districts where the climate is more tropical, the leaf is picked all the year round except for a time after the bushes are pruned.

Unlike the teas of China and Japan the first plucking does not make the best tea. According to an English authority the growth is slower toward the end of the season, and the young leaves at this time make tea with the finest flavor. Both slowness of growth and high altitude conduce to fine flavor.

On Indian plantations the bushes are plucked from twelve to twenty times during the season. After plucking, the bushes very soon send forth new shoots.

The distinguishing features of India teas (due probably to both climate and methods of manufacture) are heavy body, pungency, and depth of color, rather than delicate flavor and aroma. The dry leaf is black or grayish black, usually with yellow tips. The flavor is described as malty or nutty. Some of the Darjeeling teas have a raisin flavor which is highly prized.

The teas from the various districts have individual characteristics known to tea experts, but the retail buyer buys India tea as orange pekoe, sometimes by district as Assam or Darjeeling. Darjeeling is considered one of India's best teas, as it combines fine flavor with its body and pungency. India and Ceylon tea are often blended and sold as orange pekoe.

Another characteristic of North India teas is their tendency to "cream down" or turn thick on standing. This does not mean that the tea is poor quality, but on the contrary shows that it has good body and pungency. Some authorities think that the amount of tannin bodies influence this tendency to turn milky. Such teas are troublesome for iced tea, unless the tea is served immediately.

Ceylon tea is cultivated in the hills and on the plains, the former having the finest flavor. Tea is plucked all the year round, as there is no resting period on account of winter or drought. Twenty to thirty pluckings are made, but the leaf plucked in August and February has the finest flavor.

Ceylon tea resembles India tea, especially the lighter bodied teas from the southern districts. It has a flowery fragrance, which is delightful but not lasting. The dry leaf is brownish and wiry, the more expensive grades being tippy. As much of the Ceylon tea is not of high grade it finds its way as a "filler" in inexpensive blends. Green tea is also manufactured in Ceylon, but large amounts do not come to this market.

On Java plantations, as in India and Ceylon, machinery is employed in the manufacture of tea. The teas are much like Ceylon in character, but not so high grade. The largest shipments go to Australia and the home country, Holland. During the war Java tea became an important factor in our market. Sumatra is now growing tea similar in quality to Java, and exports some to the United States.

(To be continued)

EDITORIAL

The Mid-Winter Meeting of the American Home Economics Association. The members of the American Home Economics Association fortunate enough to attend the meeting held February 28 and March 1, in Atlantic City, will remember it as one of the significant gatherings in the history of the Association. The attendance was larger than usual at the mid-winter meetings, running well over 300 at some sessions and including interested visitors from other organizations. The program committee is to be congratulated on the success with which the main topic of each session was developed by the individual speakers, and on the general sense of unity and vigor which pervaded all the meetings.

The opening speech of the president, Mary Sweeny, struck the keynote in emphasizing the changed trend of home economics since 1917. Then it seemed in a measure "the step-child of agriculture and the second wife of industrial training," but now it is coming to be generally recognized as the science and art of rational living.

The papers presented showed that home economics still bases its teaching firmly on the facts of chemistry and physiology, economics and sociology, but they showed further that it is not merely using the facts to teach school children how to cook and sew, but is bringing them directly to the woman in the home and the girl at work in such a way that everyday living in the home is in better accord with health, beauty, and enjoyment. Moreover, home economics is helping bring down the cost of living by showing people how to get the best returns for the money they spend on the merchandise used in daily life. It is aiding in the health movement by providing school lunches and clinics for undernourished children, by teaching personal and household hygiene, and by tying up its work with that of the physical training agencies. In doing this it is going to psychology for help in methods of approach to children and adults, and to applied art in adapting materials and designs to clothing and house furnishings. It is getting into touch with manufacturers and retailers in the hope of improving standards of taste. In short, as was brought out by the discussion at these meetings,

home economics is showing itself what its friends have always felt it to be, the science of human welfare.

The Calcium Salts of Heated Milk. To what extent is the calcium precipitated out of pasteurized and evaporated milk or milk boiled for babies, and is this calcium lost in the bottom of the container?

Daniels and Loughlin¹ found that when they brought milk very slowly to the boiling point in a double boiler and boiled it for 10 or 45 minutes, enough of the calcium was precipitated out as an insoluble salt to cause young rats to fail to gain when fed on this milk. Milk pasteurized by heating it slowly (taking 30 to 45 minutes for the process) to a temperature of 65° or 82° C., and then holding the temperature there for 40 minutes would not support growth in the rats. Likewise commercially evaporated, unsweetened milk diluted with distilled water failed. Good growth was obtained with raw milk, with milk brought quickly to the boiling point in an open saucepan and boiled for 1 minute, and with undiluted sweetened condensed milk.

They could correct the calcium deficiency in the slowly boiled, pasteurized and evaporated milks, by adding to the rats' diet some tri-calcium phosphate or the washings from the pasteurizing containers or from the can in which the evaporated milk came, and obtain normal growth. The salt or washings had to be held in a suspension of starch paste to prevent their settling out and not being drunk. The salts were apparently not precipitated out when the milk was heated quickly and boiled for 1 minute; even though they were precipitated out of solution in the condensed milk, the thick, pasty consistency of this milk prevented their settling out to the bottom.

That the failure to grow on such diets was not due to a destruction of either the fat soluble A or the water soluble B vitamins was demonstrated by a lack of improvement when these two vitamins were added to the diet in some other form. Rats are not susceptible to scurvy so it could not have been due to a destruction of that vitamin.

How much application these findings have to the diet of the American adult, which is already low in calcium, it will be interesting to learn. The authors report that an investigation of the relation of these results to infant nutrition is now under way.

¹ Daniels, A. L., and Loughlin, R., A deficiency in heat treated milks, *Jour. Biol. Chem.*, 44, 381 (Nov. 1920).

THE OPEN FORUM

What is the Proper Height for the Kitchen Table?—All recent discussions of the planning and equipment of kitchens have at least touched on the subject of proper height of working surfaces. They all agree that this has direct bearing on the ease with which work can be done and the comfort or fatigue of the worker, but there is wide variation in the suggested heights for table, sink, and other equipment, some estimates placing the working surfaces $8\frac{1}{2}$ inches higher than is advocated by certain other authorities. Some writers also suggest placing table, bottom of sink, and ironing board at the same height from the floor, while others hold that the various pieces of equipment should be at different heights according to the work done on them.

As already noted in the JOURNAL (November, 1920, p. 506) experiments with the respiration calorimeter in the Office of Home Economics of the United States Department of Agriculture show that more energy is used when the working surface on which household tasks are done is not of comfortable height. If it were possible to measure the rates of fatigue under various conditions the results probably would be even more striking.

The workers in the Experimental Kitchen at the Department of Agriculture have paid some attention to height of working surfaces in connection with the different operations involved in their work; and their experience is that the various kinds of kitchen tasks can often be done most comfortably and effectively at different heights. Differences in length of arm and height of shoulder, as well as total height of body and individual methods of working, however, cause so much variation that accurate data are needed on which to base standard recommendations.

Classes in household management would undoubtedly find this an interesting problem and might collect data from which could be drawn a scale of heights for the main pieces of kitchen equipment. In order to make the data comparable, the following tasks are suggested for testing the proper height of surfaces: Use of the rolling pin, as in rolling pastry or cookies; use of a dover egg beater, or beater of similar type; washing dishes in the sink. Each task should be continued until the worker becomes fatigued, with adjustment of working surface to at least two different heights. Besides finding the most comfortable heights at which women of varying statures can perform these tasks, careful measurements should be made, not only of stature, but also of height from tip of

to make it tender, thus producing a bright green product of mild flavor. Steaming would be even a better method of preparation since there would be practically no loss of soluble matter.

The chapter on the food value of milk is very short and somewhat incomplete.

The student of home economics who is unfamiliar with the production and manufacturing aspects of dairy products will find much of value in this book.

JESSIE M. HOOVER.

Students' Manual of Fashion Drawing. By EDITH YOUNG, Director of the Edith Young Art School, Newark, New Jersey. Thirty lessons with conventional charts. New York: John Wiley & Sons Inc., pp. 107. \$2.00.

The book consists of a series of thirty illustrated lessons which begin by showing how to draw the simplest dress form; how to draw skirts, waists, tucks, ruffles, collars, sleeves, and trimmings; then follows a group of elementary lessons on such topics as features, arms, legs, heads, and the various views of the figure; more dress details and

suggestions for rendering textures; perspective and some suggestions and notes on the various methods for reproducing drawings.

In the introduction the author has made it clear that the illustrations were not intended to have any art quality but that they are "conventional charts" or diagrams of all the details in figure construction and dress design which puzzle the young student. The book must thus be judged in the light of this statement and, for its successful use, nearly all the plates must be supplemented in the classroom by illustrations which will set standards of beauty in line drawings.

The book is well arranged and well indexed so that the desired material is very easily found. The text has been adapted to the person who has had no previous experience in the technique of drawing. It does not attempt to teach principles of design, but shows simple and direct methods of representation, and is intended to be used as a guide for the "would-be fashion artist." It is a useful reference book for high school and college students in the costume design classes.

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INSTITUTIONAL MANAGEMENT

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- Reducing Selling Costs.* P. E. Derrick. Newnes, London.
- The Economic Notebook.* National Board of Y. W. C. A., N. Y.
- The School Lunch: Its Organization and Management.* Emma Smedley, 6 E. Front St., Media, Pa.
- Employment Management.* Daniel Bloomfield. H. W. Wilson, N. Y. A compilation of selected articles by leading authorities on employment management.
- Common Sense and Labor.* Samuel Crowther. Doubleday Page & Co., Garden City, N. Y. Discussion of labor problems such as labor unrest, industrial democracy, wages, and profit sharing plans.
- Personnel Administration.* Tead and Metcalf. McGraw-Hill Book Co., N. Y. Principles and best prevailing practice in the field of administration of human relations in industry.
- When the Workmen Help You Manage.* William Bassett. The Century Co., N. Y. A consideration of the employer-employee situation today.

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- Handbook of the Association Cafeteria.* National Board Y. W. C. A., N. Y.
- Restaurant Facilities for Shipyard Workers.* Frederick S. Crum. The Industrial Relations Division, U. S. Shipping Board Emergency Fleet Corporation, Philadelphia.
- Welfare Work for Employees in Industrial Establishments in the United States.* Government Printing Office, Washington.
- Cafeteria Standards and Methods of Obtaining Them.* Nola Treat. University of Minnesota.

PERIODICALS

- American Food Journal,* The Patterson Publishing Co., 25 East 26th St., N. Y. \$3.00.
- The Caterer,* 1495 Broadway, N. Y.
- Chicago Packer* (weekly newspaper), 536 Walnut St., Kansas City, Mo. \$2.00.
- Dry Goods Economist,* 239 W. 39th St., New York City. Weekly \$6.00, monthly \$1.75.
- Dry Goods Merchants Trade Journal,* Des Moines, Iowa. \$3.00.
- Grocer's Magazine,* 88 Broad St., Boston, Mass. \$1.50.
- Hotel Bulletin,* Ben P. Branham Printing Co., 175 W. Jackson Blvd., Chicago. \$3.00.
- Hotel Gazette,* John Martin, 1400 Broadway, New York City. \$2.00.
- Hotel Monthly,* John Willy, 443 S. Dearborn St., Chicago. \$2.00.
- Hotel World,* 440 S. Dearborn St., Chicago, Ill. \$4.00.
- Journal of American Medical Association,* 535 North Dearborn St., Chicago. \$5.00.
- Journal of Home Economics,* 1211 Cathedral St., Baltimore, Md. \$2.50.
- The Modern Hospital,* 24 E. Ontario St., Chicago. \$3.00.
- The Steward,* 107-9 West 38th St., N. Y.
- Tea and Coffee Trade Journal,* 79 Wall St., New York City. \$3.00.

NEWS FROM THE FIELD

University of Wisconsin Summer Courses. The great need for trained women to go into the extension field in home economics is shown by the fact that there are now over fifty-two positions to be filled in the northern and western districts; and the need will be greater in July. Experienced teachers who have first-hand knowledge of rural conditions may take a six weeks summer course at the University of Wisconsin where special courses are given in subject matter, methods of presentation, and training in community needs and community leadership.

The Department of Sociology is offering special county field work which may be taken at the same time as part of the general training, or courses in poultry and horticulture may be elected as part of the training.

Dr. Dorothy Reed Mendenhall is giving two courses on the family: first, the mother and child, and, second, the care and feeding of the older child. These are especially designed for the experienced teacher and for the prospective home demonstration agent and nutrition specialist who wish to learn the latest data and methods of presentation in feeding clinic work.

Public health nurses will find these two courses very helpful in their county work. Dr. Mendenhall needs no introduction to the home economics specialist or the child welfare nurse because of her wide experience in extension work, her connection with the work of the Children's Bureau, and her writings on the subject of child hygiene and child feeding.

Course in Homemaking Adjustments in Social Work. The Committee on Home Economics of the New York Charity Organization Society offers, for the third year, its

course in Homemaking Adjustments in Social Work, beginning Monday, June 6, and ending Friday, July 1, 1921. This course is open to a limited group of women with home economics training, who wish to observe methods used in various types of social work and receive practical experience in social case work.

For further information address Miss Emma A. Winslow, Director of June Course, Charity Organization Society, 105 East 22nd Street, New York City.

University of Chicago Fellowships. The two fellowships in the home economics department, which have been offered by the University of Chicago for the past two years, are again available for 1921-1922. Each one carries \$300 and tuition. They are awarded to the candidates who have had the best training and experience and who show the greatest promise of ability to do advanced work, including research in any line of home economics. The courses taken at the University by the successful candidates will be directed toward the Master's and Doctor's degrees. Applications with letters of recommendation should be received by the Chairman of the Department of Home Economics before June 15.

Fellowships in Social-Economic Research. Three fellowships carrying a stipend of \$500 each are offered by the Women's Educational and Industrial Union to women who wish thorough preparation for work in social-economic research.

Application must be filed before May first. For further information and application blanks, address Department of Research, Women's Educational and Industrial Union, 264 Boylston Street, Boston 17, Mass.

New York Nutrition Council. The New York Nutrition Council has been formed recently for the purpose of providing a means of exchanging information concerning methods of conducting various types of nutritional activities. Mrs. Mary S. Rose of Teachers College has been elected chairman of the Council, and Emma A. Winslow of the Charity Organization Society has been made secretary. The organizing committee consisted of Mrs. Amy D. Storer of the Atlantic Division of the American Red Cross, Mary Arnold of the Babies' Welfare Association, Lucy H. Gillett of the A. I. C. P., and George R. Bedinger of the New York County Chapter of the American Red Cross.

Membership is limited to representatives of organizations which carry on nutritional activities as part of their program. Bi-weekly meetings are held with the responsibility for arrangement assumed by the representatives.

The fall meetings were held under the auspices of the Morningside Nutrition and Homemaking Center, the Bureau of Educational Experiments, the Atlantic Division of the American Red Cross, Teachers College, and the Pediatric Section of the New York Academy of Medicine cooperating with the Babies' Welfare Association.

Sally Lucas Jean of the Child Health Organization arranged a program on Health Education in the Elementary Schools for the January meeting. Nutrition Classes in Out-Patient Departments of Hospitals was the subject for the program on February seventh, arranged by Dr. Charles Hendee Smith of Bellevue Hospital. Grace Schermerhorn of the New York City Department of Education was chairman of a meeting to discuss school lunch problems, and Bailey B. Burritt, Director of the A. I. C. P., is planning for a meeting to discuss ways of meeting the racial nutritional problem. Programs for later meetings will be in charge of Dr. M. Alice Asserson of the New York Tuberculosis Association and George R. Bedinger of the New York County Chapter of the American Red Cross. The final meet-

ing of the year is to be a "review meeting," when reports will be made by various committees appointed to summarize the conclusions reached in previous discussions.

The New England Home Economics Association opened the new year with a meeting on January 8. The hall was filled with attentive listeners, showing that the subject, *The Problem of Feeding College Men and Women*, awakens interest.

Delegates were present from nearly every New England college and many normal schools, representing both the scientific and the technical departments.

Mrs. Whiton, who buys all the food materials for Wellesley College, paid high honor to the cooks who by their loyalty and skill made satisfaction possible during these years of "high jumps" in prices. The distribution of the raw materials among eighteen different houses complicates her problem. Twice a week she interviews every house director, while between times the telephone is kept busy. For success, she stated certain general principles: Give orders early so that market-men may have a fair chance to fill your order acceptably. Let the quality be the best; this does not always mean "fancy." When prices are prohibitive, change the cuts of meat or brands of goods but not the grade.

Miss Baker, of Columbia University, gave to the dietitian wonderful opportunities. In schools she should consider herself responsible for the health of the students and so for their success in study; in hospitals, her department must not only prove preventive and corrective of disease but a second aid in surgery.

The dietitian should stand on the same plane with the surgeon and the doctor, and the kitchen should be as well equipped as the medical and surgical departments. A dietitian should keep in close touch with chemists, health officers, social workers, and nurses.

Miss Baker's successful experience in feeding five thousand persons a day, from kindergarten age up through college faculty, made forcible many practical suggestions. A few

only can be given here. The commons are both popular and self-supporting. Make the first and last impression—soup and dessert—above reproach. Watch the plate returns for their educational value. With student helpers for short periods, twenty-five per cent in the cost of service can often be saved by the cafeteria plan, over a regular meal menu. The cafeteria is more popular because the patrons can choose the meal from sight and usually therefore waste less in both money and food. Children are served at the rate of eight to ten and grown ups from four to six per minute. Menus should be made out for 6 to 8 days, or in multiples of these, so that repetitions of the same foods on definite days may be avoided.

Miss Goodrich, of Simmons College, appealed for more research work in the analysis of foods in regard to costs; for more research in actual cost of the edible portion of the principal articles of food; and for the standardization of per capita costs so that all quotations shall include the same items and therefore make possible accurate comparisons. A few such analyses have been made in her department with results of definite value.

Discussions, led by Miss Churchill, President of the Women's Educational and Industrial Union, brought out the representative character of the audience as well as the scope of the subject. Miss Pierce, representing Princeton; M. Vickers, Executive Secretary of New Hampshire State College, and Professor Mitchell, of Brown University, were among the helpful contributors.

The following were a few of the many topics presented:

What should be the relation of the purchasing agent? Should the person responsible for the preparation do the purchasing of the food? Should such an agent supervise the menus? Most directors felt that they should also do the purchasing as a matter of efficiency.

Whether men or women make the best cooks brought out widely different experiences. The consensus of opinion seemed to be that a supervisor who could—and

would—give training had good results from either.

Princeton uses all student help directed by students. Miss Pierce believes that attendance at college commons should be compulsory for the first two years, in order to make the commons financially successful.

What is done for students who are unable to eat the food served? Many give a glass of milk if desired, but allow no other change in the meal served. Some serve specially desired articles of food to any one table. This has resulted in "Queer Dinners" given one night a week.

Professor Mitchell came with definite questions relating to the problems of establishing and carrying on commons. He found that these were, in general, answered, and he left with the declared conviction that there should be "a trained woman in charge of college dining halls."

This meeting proved so helpful that at its close the request was made that more attention be given to the subject of Institutional Management in the program of the New England Home Economics Association.

Ceramic Research. The National Research Council and the American Ceramic Society have established a joint committee to promote the investigation of scientific problems along the lines of ceramic industry and particularly by founding a series of research fellowships whose holders shall devote their attention exclusively to this problem. According to statements given out by the Council, the "ceramic industries, including brick and tile making, and general crockery and glass manufacture as well as ornamental potteries, although among the earliest ones developed by man, have been the last of our great manufacturing industries to reach the state of an applied science. They have been based for centuries on rule-of-thumb methods, trade secrets, and individual artistry. As far as their artistic features go science can do little or nothing for them, but in all other ways it can be of great advantage to them."

Height-Weight Standards. A conference of seven organizations was recently called by Dr. L. Emmett Holt, Chairman of the Child Health Organization of America, to consider the possibility of adopting a uniform table of weight for height and age, acceptable to all. Among the organizations invited to the meeting were: American Child Hygiene Association, Child Health Organization, Federal Bureau of Education, Federal Children's Bureau, McCormick Memorial Fund, and Public Health Service.

It was found that there was substantial agreement between the various tables now in use, the difference being chiefly a matter of presentation or statement.

A committee was appointed to draft a table embodying the suggestions made, to be presented at a subsequent meeting before its final adoption and publication.

A Post Graduate Child Hygiene Course was opened last November at the State Normal School, Trenton, New Jersey, in cooperation with the Bureau of Child Hygiene, State Department of Health.

Training is given in the fundamentals of pediatrics and applied hygiene in social case work and in the many phases of public health work with which the child hygiene nurses come in contact.

The course is now in successful operation with an attendance of fifty-six nurses.

The home economics students at Eastern Kentucky State Normal School organized a Home Economics Club early last fall. The Club meets twice each month on Thursday evening for a program followed by a social hour. The Club is now working toward establishing a club-room which the home economics students may use for reading and resting, as well as for social gatherings and club meetings.

On December third, Home Economics Day, the Club gave a play—"Princess

Pieta and Prince Caloric"—from which \$11.90 was made above expenses. To this they added from the treasury enough to send a contribution of \$14.00 to the Ellen H. Richards Memorial Fund.

A Home Economics Club of twenty members was organized in the Schenectady High School, last September, for the purpose of promoting interest in the study of home economics and social fellowship between members of the club.

Dorothy Grant, Clara Laubengayer, and Edith Sarver are honorary members. The officers elected for the first term were: president, Margaret McKeon; vice-president, Beatrice Steers; treasurer, Iverna Hill; and secretary, Erma Schmidt.

The United States Civil Service Commission announces open competitive examinations for scientific assistants on April 13 and 14, and for matrons in the Indian Service on April 13, May 25, and July 6. Applications for positions as dietitians will be received up to June 30, and will be rated without examination.

The next meeting of the Western Arts Association will be held in Peoria, Illinois May 3 to 6, inclusive. This association was formerly the Western Drawing and Manual Training Association, and all those interested in art, manual training, home economics, and vocational education are eligible to membership. The membership fee is \$2.00. The present officers are: President, Ruth Raymond, Head of the Department of Art Education, University of Minnesota; Secretary-Treasurer, Mr. L. R. Abbott, Director, Department of Manual Training and Industrial Education, Grand Rapids, Michigan. For further information, address the Secretary, 234 N. Division Ave., Grand Rapids, Michigan.

The Fourteenth Annual Meeting of the American Home Economics Association will be held at the New Ocean House, Swampscott, Mass., June 27 to 30. Further announcement will appear in the May Journal.

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THE ADULT WOMAN'S CHALLENGE TO THE HOME ECONOMICS TEACHER¹

MRS. FLORA HARTLEY GREENE

Home economics is the science and art of bearing, training, housing, clothing, and feeding the human race, in so far as these activities are confined to the family and to the home. I give this definition in order that we may have common ground for interpreting the words *home economics*. The goal of home economics, as I see it, may be expressed in the following: The nation that twenty years from now has the most citizens with efficient bodies and trained minds will lead the world.

Through the entire period of childhood from prenatal life to the end of adolescence, the home and all that pertains to it, are the great factors in the life of the child. On them his chances for health, efficiency, and happiness in any and all of his relations in life chiefly depend. The citizens of a nation are the product of the homes of that country; the home is limited by the intelligence of the homemaker. Education for the homemaker is, therefore, the very foundation of all sound national life. The mother, as a rule, is the dominant influence in the child's life, and every resource of education should be at her command in a task of such momentous importance.

The bearing, training, clothing, and feeding of these citizens is the life work of women, and to furnish the science and the skill necessary for these activities is the task of home economics teachers. Collecting the facts of home economics that are the products of the race, sifting these facts from much undesirable matter, and presenting them in a form in

¹ Presented at the meeting of the American Home Economics Association held in connection with the Division of Superintendence, N. E. A., Atlantic City, February, 1921.

which they can and will be utilized by the women of America, has been, and is today, the special work of women trained in home economics.

You have been scouts in the colonial sense of the word, making new trails through the wilderness of accumulated family precedent, heir-looms of ancient custom, inheritance of ancestral sayings and facts, most of which will not bear the test of truth. It has been no small task, and we are not yet out of the woods. Many trails made by you have proved to be well made, and great good has been accomplished by you. Your impress has been definitely stamped on the food of this country already, and better physical specimens must without question be the result of this work of yours.

But I have wondered why you do not turn out more rosy, robust, energetic university girls. The girl who is thin and bloodless, with gray, pimpled skin, so characteristic of lack of proper nutrition and personal hygiene, is seen too often in the ranks of the college graduate. Make your teaching a personal, practical experience with your home economics graduates, and live up to your possibilities and make your influence felt throughout your college. A girl who has lived her home economics for the four years of her college life will not so quickly drop into mother's way of doing things when she goes back home.

You have done much along the line of more sane dress for women, but the apparel of the present generation is not based on sound financial, artistic, moral, or hygienic principles, and much more teaching must be done before this problem is solved.

While you have accomplished much with the people whom you have touched, you have as yet reached only one female in two thousand through all your college, school, and extension work and vocational training. And this work, you must recognize, has been for the most part in food and clothing. Without doubt these are two essentials that can best be taught in groups.

The fact that only 33 to 35 per cent of the girls in high schools elect home economics courses, when such courses are elective rather than compulsory, shows that, in general, home economics has not met the needs of the girls or that it is not their strong interest at that time.

You have been trying to teach more than just food and clothing to your high school and college girls. You are trying now to teach something on child care and nutrition, infant feeding and culture, but as a rule you have not found this girl wildly excited over baby foods or deeply stirred about malnutrition of school children. Her interest in

it is not vital; it is not a real problem to her. When she is married and has a baby of her own or knows that one is soon to be hers, the case is different; then her interest rises to fever heat. That is the time to teach her; that is the time when she will really learn. What she learns today on infant feeding will probably be passé when she has a baby to feed, so rapidly is the knowledge on this subject developing. A great mistake made by educators is that they collect their data in regard to care, feeding, and culture of defective children, all of which points unerringly to the "ignorance of mothers," and they say, "therefore we will educate the school girl in home economics." The logical deduction is that the adult woman must be educated.

We must acquire a new conception of education. Home economics education must be a continuous process for all people. There should be no commencements. Educational facilities must be so arranged that it is possible for the adult woman of all stations in life to procure, at the time when she needs it, the training and information that will enable her properly to care for and train her children. It is the adult woman who must be educated in home economics in the broad sense in which I use the term, if we are ever to remedy our wrong ideals and wrong results, both physical and spiritual. As I see it, this is the challenge of the adult woman to the home economics teacher. We adult women need this education; we cannot now obtain it, and never have been able to obtain it, in a way in which we can assimilate it.

Isolated lectures and government bulletins will not solve this problem. The nearest approach to this adult school is the baby center, or clinic, in the crowded districts of our large cities. They are only a drop in the bucket and are didactic preachments for the most part, rather than the education of the mother in the scientific principles and practice involved. They reach only the mothers of the lower strata, and the mothers of the upper strata need it just as badly. Moreover, we need more than baby feeding. We need education on all things that go to make an ideal American home filled with children who will grow into adult citizens with efficient bodies and trained minds. We challenge the home economics teachers to find the trail and lead us to it. We need training schools and information bureaus where the adult woman can find answers to such problems as these: nutrition, child psychology, amusement of children, moral standards, obedience, and courtesy. We need, not didactic lectures which say do this or do that, but teaching that gives a comprehensive knowledge of the basic facts of chemis-

try, physiology, human nutrition, and preventive medicine. A continuation school for educating and training adult women could do this.

I know you think we adult women are conceited, ignorant, unmanageable, not willing to learn. I have found American women in overwhelming majority quite different; they are willing, teachable, ignorant, yes, of the great field of scientific fact on which the science of home economics is based, but anxious, oh, so anxious, to know how to meet their problems, both physical and spiritual.

The average mother needs a definite, clear-cut knowledge of the biological capital of the individual and of the race, and here the family inheritance, both physical and educational, is often very bad. Take the one question of the origin of life. The average woman knows nothing of ovulation. Babies come by chance, or God sends them; one needs no further proof of this condition than the widespread effort at legal birth control. If a woman knows nothing of ovulation, it follows that she knows nothing of the external influences that affect the germ cells. The actual effect of alcohol on the germ cell is a sealed book to the average adult woman. Venereal disease and its blasting influence on the germ cells, its destruction of the eyes of the newborn, is a thing that some doctors know and take measures to remedy, but it is not the valued possession of the adult woman.

The average adult woman cannot answer the simplest questions of her young child on the origin of life, and she does not possess a vocabulary free from the taint of vulgarity with which to discuss with the child these vital problems. The adolescent child, with his strongly developed sensuous impulses and poorly developed judgment and will, is out of her reach because she has little knowledge of his physiology or psychology.

The tiny boy that asks his mother where baby sister came from, has a right to an intelligent answer. How many of them ever get it? And yet at that moment there is the possibility of establishing a relationship of truth and confidence which would enable the mother to guide the small lad past the thousand dangers that will beset him during adolescence. May I give you an illustration of how it can be done?

This child had spent his early life in town and knew little of animal life. He did know that chickens came out of eggs. One day when he was five years old, he was walking with his mother over a mountain trail and they came upon the shell of a robin's egg. She remarked to him, "A baby robin came out of that shell." He studied the shell a

moment and then said, "Do all birds come out of eggs?" "Yes," was the reply. A moment's silence, and then he said, "Do all animals come out of eggs?" "Yes," she answered. "Did I come out of an egg, mother?" "Yes," came the reply, wonderingly. "Mother, where was that egg?" "Inside my breast, laddie, close to my heart where I could keep it safe and warm." "Did you know, mother, when I was in the egg?" "Yes, son, I knew." He laughed a happy little laugh and continued anxiously, "Were you glad, mother?" "Yes mother, was very, very glad."

As this child grew up this mother answered truthfully always the questions asked. Sometimes the questions were most far-reaching in the possibilities of the answer, and then the mother said, "That question can wait. You do not need to know now since you would not understand, but as you grow older mother will tell you." There came a time when the question was, "Mother, how does life get into the tiny egg?" This was the mother's chance to tell her child that the germ plasma in his body was a direct gift from God, a tiny bit of immortal human life given to him through his parents and to be passed on by him to his own children. This was her opportunity to make that child feel himself a co-worker with God in the possibility of his power of the creation of human life, to make him realize that in these tiny immortal cells was wrapped up all the love, the hope, the inspiration, and the struggles of countless ancestors of his, and that it was in his power to destroy or perfect this heritage of the ages.

We have all been much concerned about the moral welfare of our young men and young women as influenced by a world war. It is well that we should be so concerned. I think sometimes that ignorance of mothers is at the bottom of much of our trouble that comes from social immorality. We have not known how to present the great fact of origin of life and immortality of the germ cell to our children. When it comes to matters of sex, we have said "don't" to our daughters and kept silent with our sons. When our children have chosen mates, we have asked what is the social standing or the bank account of the chosen one, when we should have asked, Is the germ cell of this person and his family free from taint of alcohol, insanity, or venereal disease? This is the ideal to be upheld in our home. We must teach our children the facts of life and hold always before them the highest physical and spiritual ideals.

The home economics extension work, with the pig club, the canning club, the shirtwaist club, has been of great help to the adult rural woman

in the solution of social and educational problems. The town and the city woman needs similar help.

The places are rare where a mother can go and get reliable, exact information on a problem of character building in her child. Where has her education been a failure, that she is not able to share the joys and pleasures of her children? Who shall teach her that she has failed in making an ideal American home if her children are not content at home, and are not willing to find their amusements in her home but must go to the "movie" or to a dance away from home for satisfactory entertainment?

I have elaborated only one of the many subjects in which the adult woman and the home need you. You can outline the problems of nutrition, clothing, child training, housing, home sanitation, home nursing, amusements, and so forth.

To teach all that the adult woman needs would require a university faculty, you exclaim. I agree with you, and I do not urge that you be experts in psychology, sanitation, chemistry, biology, preventive medicine, and a dozen others vital to the education of an adult woman; but I do urge that you select from the faculties with which you are connected such courses or parts of courses as shall give the adult woman what she needs to meet her daily problems of bearing, training, feeding, and clothing the children of the race, and make it possible for the adult women of your state to avail themselves of this priceless opportunity. We can learn to use microscopes and charts. We can be taught calories and chromosomes, proteins and prophylaxis. Many national and state associations await your call with trained workers and lantern slides and films to help you.

The Red Cross is ready with nurses to carry some of these lessons into the home. The American Medical Association has long been at our command with much that we need in this work. The National Hygiene Association is anxious and willing to give its most vital information. The United States Health authorities are trying to give needed help. Can you not coördinate all these for us and find a way to carry the message to the adult woman?

As a representative of the two million and more club women of the United States, as a member of the Association of Collegiate Alumnae, and as a member of your own Council, I beg of you to see this great opportunity to give to the world the greatest possible educational advice. The Fess Bill, if it is passed, will furnish the finance; you must furnish the brains, the plan, and the teachers.

OBSERVATIONS ON DIET IN LABRADOR¹

VIVIA B. APPLETON, M.D.

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The character of the food supply in Labrador along the Straits of Belle Isle offers an excellent opportunity for observing the effects of a simplified cereal-meat diet on a large group of people for a considerable period of time under fairly constant conditions. Stefansson and other arctic explorers have described the carnivorous diet of people in polar regions. A great deal of experimental work has been conducted to ascertain the effects of simplified diets on the development and health of animals. Very little consideration, however, has been given the clinical evidence offered in this region where people live on a diet very low in vitamins and where deficiency diseases occur not uncommonly. The following observations were made during the winter, spring, and early summer of 1919-1920 to determine the exact nature of the diet in this region and the incidence of diseases supposed to be of nutritional origin.

DIETARY

Conditions remain fairly constant because food supplies are ordered in the fall to last until the following summer, or even for the entire year. Anything that has not been procured before navigation closes in December cannot be had before the ice breaks up again in June. One winter mail comes via Quebec, but it requires three months by dog team, and parcels are not accepted. Small surplus supplies are kept in little stores along the "coast," but these change the amount consumed rather than the kind of food. In 1919-1920, navigation closed December eighth and did not reopen until June. The first mail steamer arrived May thirtieth, but very little freight was brought before the end of June.

White Flour. Bread made of white flour is the chief article of diet. One and a quarter to one and a half barrels of flour are consumed per person per year. Whole wheat flour would be much more wholesome in such a restricted diet, but the people do not like it. When ill and given whole wheat flour, patients take it as they would any other medicine, but they never buy it for themselves. Probably no other group of

¹ Investigation conducted on a fund provided by the Bureau of Social Education of the National Board of the Y. W. C. A., and by courtesy of the Grenfell Association.

people so successfully avoided eating war bread. To be sure, extra cereals were required to be bought with a given quantity of white flour, but these cereals were often used as dog food. This was not from any lack of patriotism, for men enlisted courageously, but bread is veritably their staff of life and they prefer it white. They come dangerously near trying to "live by bread alone." Everywhere we found good bread, whether made with hops or dry yeast cakes.

Meat and Fish. An average family of eight persons has one or two barrels of salt meat, either pork or beef, two to four quintals of salt fish, and one to three barrels of salt herring. Game is the only fresh meat eaten. Formerly it was plentiful, but of late years it has been very scarce. No rabbits were shot last winter and only one deer within a distance of two hundred miles. Partridges (ruffed grouse) were somewhat more common throughout the winter and water fowls of various sorts were plentiful in the fall and late spring. Trout are caught through ice holes in the brooks as early as May. The cod comes late in June and salmon soon after, and then the fishing season continues until November, so there is a plentiful supply of fresh fish throughout the summer and autumn. Seal meat is abundant during the first half of June. It comes as a very welcome food when supplies are scarce, but many persons who have not eaten meat for a long time have been made very ill by seal meat, probably from too sudden increase in protein. One man was seen in collapse, almost pulseless and with a temperature so low that it would not register. He recovered rapidly however, within twenty-four hours. Meats are usually stewed, often with a dumpling sort of "pudding" to take the place of vegetables.

Molasses. Molasses is used commonly in place of sugar. Most families have a small supply of sugar for guests, but ordinarily they use molasses instead. Twenty gallons of molasses per person per year is a usual supply. It is not the best molasses.

Vegetables. The more prosperous families have from one to two barrels of potatoes and one or two barrels of turnips (rutabagas). When gardens have been successful the supply of potatoes may be larger. A sack of onions is provided in a few cases but is not usual. Rice is not used generally, but a few families had from twenty to twenty-five pounds. Dried peas are eaten almost universally once or twice a week as long as the supply lasts, the usual quantity being twenty to forty gallons per family. Some families have also a smaller quantity of dried beans. The years when gardens have been successful the cabbage may

last until nearly December. Dock (*Rumex sp.*) and Alexander plant (*Smyrnium olusatrum*) can be used as greens as early as June, but they are very little eaten. Dock is plentiful. It has a lance-shaped leaf of pinkish hue when young and tastes very like spinach when cooked. Alexander plant has a flavor resembling that of parsley when freshly picked. We found both very palatable, but our patients ate them only when convinced how wholesome they are.

Fruit. Small quantities of canned fruit are provided for guests or fêtes but can scarcely be counted as an essential part of the diet. Nearly every family has ten or twenty pounds of raisins, which are used chiefly in buns or in boiled pudding served with meat and gravy. A few pounds of dried apricots or dried apples are commonly provided and eaten as jam. Occasionally a family has figs or prunes. About the only fresh fruit eaten is the berries which grow nearly everywhere. Those eaten most commonly are partridge berries (*Mitchella repens*) and another berry, unknown in our climate, called bake apple (*Rubus chamaemorus*). Sometimes they are preserved by cooking, without sugar, but usually they are placed fresh in a jar or barrel and cooked just before eaten, or are used fresh as a filling for cakes as a special treat. As berries were scarce last year, most families had only three or four gallons, while others had as much as eighteen or twenty. In regions where berries are plentiful one and a half or two barrels are looked upon as a proper supply for a large family.

Butter Substitute. Cow's butter was not used except by the very few families who have cows. The fact that it costs fifty per cent more than the butter substitute which is universally used makes it prohibitive. Twenty pounds of butter substitute per person is considered an ample supply for a year. The poorer families sometimes have as little as ten pounds per person or even less.

Milk. Condensed and evaporated milk are both used, the sweetened condensed being the most popular. Powdered milk is very rarely bought. Two cases of milk are considered a generous supply for a family for a year. The poor get only a can at a time and may have only a dozen cans during the winter. Thirteen cows and three goats were the only source for fresh milk for a scattered population of nearly eighteen hundred inhabitants. Cattle are fed so little and such poor hay that they give little or no milk in winter. Fresh milk is therefore a luxury and a rare treat even for the sick. The same may be said of eggs. A few people have fowls, but they lay only in summer. Both chickens and

cows have to be guarded very carefully to keep the dogs from killing them. This danger, together with difficulty in procuring hay and grain, and ignorance as to how to make them productive, have kept the fishermen from having cows and chickens. No eggs are imported. Egg powder is used sparingly in making cakes. Fresh milk is always scalded immediately to facilitate the rising of the cream. Practically all the cream is used for making butter, and only skim milk is employed for other purposes.

Tea. Every family has from twenty to forty pounds of tea per year. It is the universal beverage, and two or three cups are taken at every meal by young and old. Tea is usually boiled and is very strong. Five or six meals may be served a day, but bread and butter and tea sweetened with molasses are the basis of each, and often this is all. Meat is eaten usually only once or twice a week, as are also salt fish and dried peas.

By February people with scant supplies had little left but flour and tea. Some time in April supplies of potatoes and rutabagas were exhausted. Condensed milk, salt meat, and even salt fish were getting very scarce. In May everybody's supply of everything but flour was low or exhausted. New summer supplies did not begin to arrive until late in June.

DISCUSSION

We have here a diet chiefly of cereals. There is an excess in carbohydrate and at least a partial deficiency in vitamins and suitable protein. Growth in the children is retarded, more markedly in the poorer families. Deficiency diseases were less common than would be expected as the result of such a deficient dietary. Only isolated cases developed five or six months after fresh food was lacking in the diet, and two or three months after the supplies had been cut down to a minimum. An increase in general nervous instability was evident by the end of March. Psychoses and insanity became much more frequent. Most of these patients recovered completely on proper diet. Night-blindness² became common during April. A few cases of beriberi,

² *Editor's note*—The following extract from a letter, written by Dr. Appleton to Dr. C. F. Languority since the foregoing article was accepted for publication in the JOURNAL, gives Dr. Appleton's more recent opinion about the cause of night-blindness:

"I believe, after going over my notes time and again and changing my mind several times, that night-blindness is a negative after-image following long exposure to the dazzling glare of the sun on the snow. At first the neurotic element seemed important, because it came in April when nervous instability seemed the predominating result of poor diet; in regions where deficiency diseases were rare; and occurred not in families or exclusively among

edema, xerophthalmia, scurvy, and pellagra were seen in May. The substances in food necessary for promoting normal growth and health must be only partially lacking, and so it would seem that they are much more widely distributed in food than is usually supposed. Vitamines are probably provided in part by the wild berries, small quantities of condensed milk and vegetables, and molasses. The importance of tea in the diet, together with the relative scarcity of deficiency diseases following such a restricted diet, leaves little doubt that the vitamines present in tea are of considerable value.

It was interesting to find that spruce beer, made from young spruce tips, is a popular beverage in spring. Early explorers in this region are said to have prevented scurvy by using a pine infusion. "Beer" made by pouring hot water over the broken spruce tips is a mild and pleasant drink, whether fermented or unfermented. When made by boiling, however, it is very bitter but is popularly considered an excellent old-fashioned "spring tonic." Another very surprising and interesting finding was the fact that popular belief attributes curative value to raw bird's liver for night-blindness. Careful investigation traced this belief to tradition and not to any modern medical advice.

the very poor but among groups of people. A purely neurotic etiology is excluded by the fact that the night-blindness occurs almost exclusively among men and that it responds readily to any treatment; only two cases could be found to have occurred in women.

"The bird's liver treatment seemed to point to a real deficiency disease, but in most cases one liver was enough and more were not taken. If this were a deficiency disease, one would expect to find it in the region where beriberi and xerophthalmia were common, but it was most common in a village where these diseases were absent. Its frequency increased during April or early May and then decreased, although the scarcity of food became more and more acute and was not relieved until June. It was coincident in season with snow-blindness and, like it, disappeared with the melting of the snow. The two did not occur in the same person or following one another. Night-blindness does not occur during the dark winter days, or after dull days, or in summer when the ground is free from snow. It varies in intensity and is usually intermittent, probably dependent on the brightness of the day or the amount of exposure. It is most common in young adults engaged in out-of-door pursuits; women rarely go out, and so escape. It is described as a blindness that comes on at twilight; the eyes 'feel weak all day and then there is a cloud at night.' The person affected can see a light no matter how blind, but can see nothing else. Convalescents here are similarly blind after reading too long. Any one can experimentally get a like after-image by looking at a white sheet or book under a strong light at night.

"The treatment cures, because the patient who submits to treatment remains in the house. Night-blindness must be a retinal fatigue rather than an inflammation, as in the case of snow-blindness in which the photophobia is extreme. Poor diet may increase the probability of seeing after-images just as fatigue does."

STUNTS OF HOME ECONOMICS WORKERS

WINIFRED STUART GIBBS

It goes without saying that we are proud of the manner in which home economics has developed. Since the days when "domestic science" invited its first followers to consider the delights of being "cooking teachers," and "domestic art" beckoned alluringly to the sewing machine, we have travelled far on the road to professional consciousness. As a group, however, we do not yet realize to the full our potential power. Flushed with the victory of our well-fought fight for academic recognition, we may go down to defeat if we array ourselves against, or even fail to support, certain forces now making themselves felt. Obviously, we cannot all be brilliant technicians in food or textile laboratories, but let us not forget those other laboratories, where are being worked out problems of human, rather than of chemical, relationships. Moreover, is it not in these same larger social laboratories that the work of chemist or pedagogue is destined to reach fullest fruition, and receive adequate appreciation?

The coöperation between home economics workers and social service is one of the earliest examples of this. No one questions the breadth of common interest between home economics and forces that are socially remedial. Visiting housekeeping, hospital dietetics, settlement classes, these are but a few of the tested lines of team work open to the home economist. We are just beginning to realize, however, what it may mean to work in the largest field of all, that is, with the great and unorganized masses of the housekeepers of the nation.

An increasing number of home economics specialists are taking their training and scholarship into the so-called "commercial world" and are serving as connecting links between their profession, the manufacturer or dealer, and the public. This is the story of one of these "stunts" in home economics, written in the hope that other workers may be induced to tell other stories of yet other stunts.

The advertisement of a large milk company in New York came under the eye of a home economist who is by way of liking to seek new trails. "The man who wrote that," she said to herself, "had the right idea, but did not know how to use it to best advantage. Perhaps I can help him." So much for the initial contact. It was an easy matter to convince the company that to organize their publicity on an educational basis would be "good business." The home economist was quite

thrilled at the thought of counting her students by the hundred—she did not guess that it was to be by the thousand—so the experiment began.

Since the underlying principle on which the work was based called for unsolicited cooperation from the public, it was decided to open a small office in one of the stores operated by the company for the sale of dairy products. The store chosen was in up-town Manhattan, where the patronage was made up of well-to-do, English-speaking families with young children. Later, if the experiment should prove successful, the worker argued, a center might be established in a downtown store. At first, however, it was vital to the success of the plan to have instant and complete understanding from those who came to the bureau.

A registered nurse, in uniform, was stationed in the prettily fitted up show window of the store. A scale stood near. A weight chart hung over the nurse's desk, ready to record the stories of progress to be made toward normal weights. A card that read as follows was sent to every family living within a given radius:

TO ALL OUR NEIGHBORS

Perhaps children in your family are already drinking milk. We hope so. If you are interested in having a special dietary, planned to meet the needs of any child in which you are interested, you may call at ———— Avenue, at any time between 9.30 a.m. and 5 p.m.

The women who have charge of the bureau have had wide experience in feeding children. The director has taught at a well-known university; the nurses are graduates of well-known schools.

Yours for strong citizens,
————— COMPANY.

Within a week children were coming in unending streams, and at the close of the second month, the bureau has on its books the record and history of fifteen hundred children. This number is limited only by the fact that the nurses are turning away new applicants, until such time as the staff shall have made plans for proper analysis of data, as a basis for developing the work.

All who are interested are given an announcement outlining the information the bureau has to offer, and the educational contests that it proposes to conduct. Each child is given a weight card, with the number corresponding to his number on the wall chart, so that the nurses can see at a glance just what to do next.

At the close of the three-months' period allotted for testing the public interest, the bureau is deciding on future policies. The three main lines of endeavor are: the neighborhood work centering in the bureau; a new neighborhood, where undernourishment is a definite problem; outside contacts in schools.

Before anything further could be developed it was necessary to put the work on the professional map. How to do it was a nice question in human and professional relationships! Finally, an invitation conference was called at the Academy of Medicine, as being neutral ground, and to this meeting were asked representatives of Columbia University, the Child Health Organization, the Diet Kitchen Association, the Department of Health, the medical profession, the Dietitians Association, the Home Economics Association of Greater New York, the Association for Improving the Condition of the Poor, the Charity Organization Society, and various other organizations. The ensuing discussion marked a point in the development of home economics. The fact that such authorities were interested to discuss the matter at all meant that the profession is a living force in the world of social activity.

Just what form the professional coöperation will take has yet to be worked out, since both the worker in charge and the various consultants realize that it must be done carefully. The fact remains, however, that there will be coöperation, the director of the project holding herself responsible to three groups: the company, the professional group, and the housewives. This means real team work.

Meantime, a fellow profession has, it seems to some of us, a message.¹

"Let us have no illusions about this thing we call a profession. . . . The attainment of recognition may . . . bring with it a self-satisfaction, an intolerance of new ideas and new blood that is the essence of destructiveness. It was this which happened to the medieval guilds.

"Back of all the great professions there is a tradition—of men, of methods, of ethical standards. Partly it is that tradition which gives them dignity, which makes them greater than a mere aggregation of individuals. And partly also it is that tradition over which constructive evolution stumbles, in the face of which new ideas falter. . . . If ever we reach the point where new ideas are frowned upon, where individuals for their lack of orthodoxy are denied a hearing, where we are static and not dynamic—then we might better never have begun at all."

¹ The profession alluded to is social work. The message is from *The Compass* (March, 1921), published by the National Social Workers' Exchange, 130 E. 32d St., N. Y. City.

RELATION OF BOYS' AND GIRLS' CLUB WORK TO THE RURAL HOME AND COMMUNITY¹

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Boys and girls together are the group through which those engaged in the extension of farm and home practices believe that they can build most permanently in raising standards of living, lessening home labor, and developing leadership whereby the rural family as a whole may be assisted to a higher plan of "self help" and community consciousness. Young people are easily molded in right habits and standards, and are the group reached on the threshold of the most intensive period of human usefulness as farmers and homemakers. Through their enthusiastic participation in helping to solve home problems they themselves acquire an intelligent and sympathetic appreciation of rural home life.

The methods used in the club activities are in keeping with the principles underlying the agricultural extension system that reaches every part of the United States. The system has been organized by the United States Department of Agriculture in cooperation with the land-grant colleges and county extension organizations in accordance with the provisions of the Smith-Lever Act of 1914 and other acts of Congress and state legislatures. Demonstrations on the farm, in the home, and in the community, by men, women, boys, and girls, are the chief means by which this work is done. It is backed by the research systems of the state agricultural colleges and the United States Department of Agriculture, and brings to the farmers and the homemakers the new information that is deemed practical and useful. By conducting a particular phase of the farm or home business and putting into operation methods that have been found to be practicable, boys and girls are enabled to aid materially in solving economic problems and to raise standards in the community in a single year.

For example, in some sections of the country the poor quality of the homemade bread and the insufficient amount used is a community problem of vital importance, for bread is in the American diet not only the proverbial "staff of life" but one of the best foods for keeping down

¹ Published with the permission of the Secretary of the United States Department of Agriculture.

the cost of the diet as a whole. Consequently in the homes of club members demonstrations have been conducted through which both boys and girls and their families have learned what good bread is and how to make various kinds of it. For instance, the five thousand Minnesota boys and girls, who during 1920 belonged to bread clubs, are bound to have an influence in their homes and communities, just as has a club of twenty Indian girls who taught their mothers how to make yeast and quick breads. Moreover, bread club work, like all the homemaking activities, gives club members an opportunity to assume greater responsibility in the farm home. During 1920, over four thousand bread club boys and girls did all the baking for their families as naturally as did the North Dakota girl who wrote: "Oftentimes it is necessary to wash clothes and make bread on the same day. It is hard for mother to do both, so I make the bread." Foreign-born boys and girls in rural districts are especially interested in bread clubs. They rarely miss a meeting and often bring their parents with them, thus making club work of benefit in the broad movement of Americanization. "I cannot tell half what club work means to the people here", writes the judge of a recent county bread-making contest. "The best loaf of bread was made by a little Austrian girl who never had white bread in her home until she joined the bread club. Three of these little Austrian girls from the same community had never seen a train before, or an electric light, or a moving picture show. They stayed in an American hotel in a real American bed and wore for the first time the nightgowns that they had made in their club work. 'They could scarcely sleep,' their leader said, 'thinking how funny they looked in their long white robes.' One of these girls made the best loaf of bread. You are doing a wonderful work in the foreign homes of this northern country."

The public demonstration team work is proving to be exceedingly effective in extending the influence of the bread and canning clubs, for it is one of the best methods of interesting adults. They are often drawn to such demonstrations by their general interest in boys and girls, and nearly always go away exponents of the practices taught. During 1920, in the North and West, over two thousand bread club girls gave such public demonstrations.

Meal preparation clubs also have an influence on the life of the home and the community through the planning and serving of well-balanced meals at home and of hot lunches at schools. The boys and girls learn

something of the principles of food selection and why some foods are especially important in the diet. For instance, "the value of milk used in the preparation of soup and cocoa has been strongly emphasized," writes a state club leader in telling of the hot school lunches prepared and served by her boys and girls. Nearly 250,000 of these school lunches have been prepared in the North and West during 1920, and about 30,000 meals planned, in addition to the preparation of over 200,000 foods for club members and their families.

A few years ago, canning in the average home was done on a small scale, and with only a few foods. Now, home canning of meats and vegetables as well as fruits has won for itself a distinct place among the few remaining home industries. The canning clubs have played an important part in this by introducing labor-saving methods and demonstrating the use of pressure cookers and other improved equipment. Also during the war, because of methods already tested, canning clubs were an invaluable aid to the food conservation program. Incidentally, the girls and boys doing this work have gained in responsibility and initiative. Many girls, for instance, do all the canning for their homes, and it is not uncommon for a club girl to be recognized as an authority on canning in her neighborhood and even to have her services employed. Elizabeth, a Colorado club girl known throughout her county as the most successful canner of meats, has earned an average of \$3.50 a day by canning for the women of her community. She takes her equipment, including a pressure cooker, with her and often spends several days in one home.

Important though it is to improve household practices in the preparation and use of foods, boys' and girls' club work has not stopped there. When the close of the war lessened the need of canning demonstrations, the clubs began to turn more of their attention to clothing. The high price of textiles and labor, especially in ready-made garments, made clothing an economic problem, and the clubs set about doing what they could to solve it. The community programs under which they work are so flexible that the change from canning to clothing demonstrations was made without waste of effort. The different clubs have of course taken up various phases of the problem, according to their needs. Some members have made inventories of their wardrobes, estimated the cost of the clothing they would need for one or two years, and set as their goal what they thought they could accomplish within that period. Others, interested in making the best use of what they already had,

have demonstrated the care and repair of clothing, remodeling, dyeing, and even laundering.

Practically all clothing club girls do their own mending, and many keep the clothing of the entire family in order. Also many clubs have during the past year made profits by selling aprons, rompers, under-clothing, and other easily made garments to the women of their communities. Good machine work and intelligent use of commercial patterns have been demonstrated in nearly all the states. Many girls are also demonstrating the essentials of appropriate dress. As a consequence, the girls learn what are correct standards of dress and personal appearance, how to judge the value of well-made garments, and how to exercise economy in buying. The success of these clothing demonstrations can be seen where the work has been under way for some time, in such results as improvement in the quality of materials and style of dress of country boys and girls, increased self-respect on their part because of better garments worn, a change in the character of materials handled by the country store, and better care of clothing.

The latest development in club work is partly an outgrowth of the clothing demonstrations and has great possibilities in adding to the attractiveness and comfort of the rural home. For a long time club members have been making curtains, pillow cases, towels, and dresser scarfs for their bedrooms, but not until this past year did they realize that they could transform their entire rooms. Clubs of these girls have adopted as their slogan, "Own Your Own Room." The leaders find that the girls are intensely interested in rearranging and redecorating their rooms, selecting and refinishing furniture, and using materials on hand to the best advantage. The club members are not urged to make dressing tables from soap boxes or wing chairs from barrels. The leaders assume that the girl on the farm today, either has furniture which a little work will make more attractive, or is able to buy new pieces. Especially is this true of the club members who have money earned in their other club activities. The wide field of household decoration and sanitation is thus opened to these girls. After a 4-H club girl has wrestled with the problem of producing a pleasing effect in a little bedroom with a sloping roof, she is anxious, and probably her mother and brothers as well, to see what may be done to solve similar problems throughout the house. The results of pig and calf clubs have shown the benefits of developing a sense of responsibility and ownership in the farm boy. The "Own Your Own Room" clubs are

doing for the farm girl what these stock clubs have done for him. Moreover, leaders feel that, if this club activity can bring, even in small measure, a fuller appreciation of farm and home life to rural boys and girls, it has paid big dividends on the energy and money expended.

Boys' and girls' club work has even deeper significance than the immediate results show. In far too many cases the only training that rural girls receive in homemaking is through organized club work. The situation described by this club leader is typical of that in many communities: "The majority of our rural girls marry as soon as they complete the eighth grade, or leave school to marry, and most of them know absolutely nothing about cooking, housekeeping, or anything that pertains to homemaking." Statistics show that about fifty per cent of rural girls leave school between the ages of fifteen and nineteen, and fourteen per cent of these girls marry very soon after leaving. At present, a very small percentage of the rural schools that these girls attend have courses related to homemaking. Leaders in club work are therefore making a special effort to reach such girls and give them the fundamentals of nutrition and the basic principles of good homemaking practices. Where there are county club agents, it has been possible to reach twenty per cent of the farm homes.

The economic returns to club girls from their work in gardening and poultry are proving to be not only a large factor in solving immediate problems of clothing, education, and other wants, but also a boon to former club girls who, in partnership with their husbands, are pooling all their resources to buy a farm of their own. According to statistics, over fifty per cent of the farmers under thirty-five years of age are tenants.

Nor does the club work with girls stop with the gardening and poultry. During 1920, in the North and West, over five thousand girls were enrolled in live-stock and crop clubs. Leaders encourage rural girls in these activities, for it is believed that such work broadens the sphere of influence of the girl in her future rôle of wife and mother. She is then able to appreciate and discriminate justly in attacking and helping to solve rural problems that arise, establishing confidence in others, and becoming herself a recognized force in farm and home development. Likewise leaders encourage rural boys to participate in club activities related to homemaking, so that through this common effort of boys and girls for farm and home betterment there will develop a sympathetic understanding and common interest in the farm and home.

The quality of all club work is raised by providing special means for giving publicity to the demonstrations conducted, encouraging and rewarding work well done, and including the social activities that make a strong appeal to the adolescent. There are, therefore, club records; various contests; club festivals, hikes and tours, when each member observes the work of all the others; achievement day meetings, when a premium is placed on the successfully completed demonstration; and charters, given to those clubs that meet the requirements of a standard club.

The outstanding features of boys' and girls' club work that play an important part in rural home development and at the same time are of direct benefit to the boys and girls themselves may be briefly summed up as follows:

In all extension work, it has been recognized that permanent progress toward better agriculture and homemaking is directly dependent upon the kind and amount of leadership developed. Boys' and girls' club work is a simple and efficient system for developing rural young people into such leaders. First, it interests boys and girls through a community program of work. Then it helps them to carry out the program, and this results in their serving the community. Scores of former club members are now community and county leaders in the county extension organizations of the North and West. In Norfolk County, Massachusetts, alone, eleven leaders of the canning and bread clubs during 1920 were former club members.

The interest gained from becoming a demonstrator in some home-making club activity has led thousands of girls to take systematic instruction in homemaking in secondary schools and colleges, often paying their own way in part with money earned through club work. During 1920, in the North and West, 3383 club members attended short courses in agriculture and homemaking at the state agricultural colleges, while 730 club members won scholarships. State club leaders also reported that over 1800 former club members were taking the agricultural and home economics courses in the state agricultural colleges.

Moreover, as has been shown, such work as that provided in the homemaking and agricultural clubs gives rural boys and girls experience that they can capitalize to good advantage in their future work as farmers and homemakers. In addition, through the club group, there is developing among the rural young people, initiative, vision, and a home and community consciousness, which assures a happier, richer, and more contented rural home life.

PROBLEMS OF THE DIETITIAN IN THE CARE OF OUT-
PATIENT POOR SUFFERING FROM
DISEASES OF METABOLISM¹

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There are a number of problems that present themselves in the care of the poor patients suffering from some disturbance in metabolism. Some of them are chronic cases and they tax the patience and generosity of the physician, the dietitian, and the social welfare worker. They are old people, or elderly people, usually, and the professional welfare worker feels rather disinclined to exert herself indefinitely for their sake. The question that I shall endeavor to discuss borders on the domains of social charity, dietetics, and medicine, and I ask your indulgence if I diverge from the caloric value of food and a well-balanced diet.

There is a tendency on the part of the welfare worker to react with little interest in the case of a chronically ill, elderly patient. It is true that from an economic point of view, it is poor business to invest money in the care of such sick. They never become productive members of society. They will, most likely, always remain a burden upon the charity organization. Why bother with them, when there are acutely ill patients, young and robust, who can be helped for a little while and who then become self-supporting? The injustice of such a tendency is great and self-apparent and yet it is ever present.

These patients are derelicts on the road of misery and poverty. They are veterans of the battles of life who have lived industriously until age and disease have made them dependent upon our charity—so often wanting in us. To neglect them is to show a sense of utter lack of social responsibility. It is as if a people were to neglect crippled war veterans who have sacrificed their all for our safety. Such a condition of affairs is intolerable and should be remedied.

How can one treat an old diabetic patient, who, not only has not the wherewithal to purchase the special food necessary, but has not the very bare means of subsistence? What purpose is it to give advice as to diet

¹ Presented at the Third Annual Meeting of the American Dietetic Association, New York, October, 1920.

and medication when the patient does not know where to get his next meal? Suppose this patient is referred to the social service department. After due investigation he is helped for several weeks, and then the help stops, for there seems to be no end to the assistance to be extended.

I have proposed that a certain budget be assigned to the social welfare department to be used by the dietitian at her discretion. When such cases do appear in the clinic, the physician, the dietitian, and the social worker will not feel so helpless.

The dietetic treatment of the poor must be especially circumspect. It is my lot to attend to a clinic serving the very poorest of the poor. In advising a diet for them, the physician must have the following facts clearly before him: the economic status of the patient; the foods that can be most economically purchased; instruction of the patient by the dietitian in the preparation of foods; continued and repeated examination of the patient—his state of acidosis or sugar tolerance in diabetics, his degree of edema and nitrogen retention in nephritis; investigation of the home life of these patients.

The economic and financial condition of the patient must be known. Those dependent on the support of their relatives must be urged to follow implicitly the directions given to them. It is advisable, occasionally, to speak to the relatives who are supporting the patient and impress them with the desirability of following the dietetic regulation, and with the health penalty that will follow disobedience. Amongst the poor, especially the Jewish poor, the family ties and the family affections are very strong, and these words of caution will help very much.

When the financial status of the patient is such that he or she must become a burden upon charity, we must see to it that organized welfare work accomplishes its duty. The arrangements must be made with the "baker, the butcher, and the candle stick maker" to have the necessary food ingredients supplied to the patient. One point must be remembered—and I was taught this by a social service worker—that more than necessary must be given to the patient if she be a mother, for, otherwise, the mother will share with her children and will herself abstain from the food in order to see that her children have enough.

If something suitable can be found for the patient to work at and help in earning his subsistence, well and good. If not, it is the duty of the state or of the welfare department to see to it that proper support be extended to the ailing individual.

The dietitian must see to it that, in carrying out instructions of the metabolist in regard to food ingredients, only such vegetables and other foods are recommended as are in season and are to be obtained easily and cheaply. In this regard the dietitian serves her main function. And not only this, she is to visit the home of the sick or have classes in the hospital where the sick can visit and be shown how to cook the vegetables and other food properly and palatably.

May I, at this juncture, point out to you the religious factors in the preparation of a diet? I am especially able to discuss the diet question from the orthodox Jewish viewpoint. You know, for example, that Catholics refuse to eat meat during the Lenten season. So do the Jews have certain religious regulations in the foods that are allowed to them. The more miserable and poor a person is, the more there is implanted in him all superstitious and religious observances. He seeks his consolation in the church, the synagogue, or in the various medical cults. At that time one cannot teach the patient science or logic. One has to recognize these prejudices as one recognizes varying tastes, and cater to them. To ignore these scruples or belittle them is to work harm to the patient and animosity toward the dietitian.

There is an opportunity for dietitians in the Jewish hospitals. It seems that there are very few Jewish women who enter the profession of dietetics. In order to be a dietitian in a Jewish hospital or in a Jewish community, it is essential that the religious laws of the Jews be known by the dietitian. It is not necessary that she be a Jewess.

All dietetic ritual laws of the Jews are based upon the fourteenth chapter of Deuteronomy. If you, at your leisure, will read through Deuteronomy you will become expert in the Jewish ritual, and therefore can help us very much, in all the communities where the populations are dense, in solving this problem.

And remember this especial injunction: "Thou shalt not seethe a kid in its mother's milk." The Talmudic explanation of this is—you may be interested in this subject—that it seemed cruel to Moses to take a calf and seethe it in its mother's milk, and he therefore forbade this practice.

The rabbis, in explaining this, say that in a civilization like that of the present time one cannot know which is the kid and which is the mother's milk, and therefore they have forbidden the mixing of flesh and milk, and not only the flesh and milk, but flesh products and milk products. For example, you may not take a piece of butter on your bread

when you eat meat. Nor may you take a glass of milk when you eat chicken.

One cannot see any logical relation between chicken and milk. There is no relationship there, but that is the ritual, and it is a very thorough ritual, and you will find millions of people here in America who would rather starve than eat anything that will be a mixing of this diet.

May I repeat, there is a crying need for dietitians who understand the Jewish ritual. It is not essential that they be of the Jewish faith as long as they are cognizant of the Jewish prejudices. This is especially the case with visiting dietitians and with those who are to become connected with orthodox Jewish hospitals—in contra-distinction to the reformed Jewish hospitals.

One scientific point I should like to make. In visiting the sick, especially the diabetic sick, I have noticed that the dietitian gives instructions that are not altogether in consonance with the laws of metabolism. In the advice given to diabetics one must remember that, while it is desirable to keep the patient sugar free, it is especially essential to keep his hydrogen-ion concentration, his acidosis, normal. This can only be done by limiting the fat intake. For, while the diabetic individual is characterized by a disturbance in the metabolism of carbohydrates, he is also, due to this fact, suffering from an improper break down of the body fats with the resulting formation of the acetone substances, which are so toxic. The patients, therefore, must be cautioned against the indiscriminate use of fats.

CLASSICIST AND ROMANTICIST

A CALOR-EPIC

This is the tale of the calorie, wrapped in our liver and bacon,
 Hidden away in the bean and spurning the succulent celery.
 Large is his stature or small, and how shall we fashion his dwelling?
 Why is his place in the sun, and why is he leagued unto nations?
 Surely the gods have repented the evil they wrought on our fathers,
 Given us this calibration to measure the tube of Prometheus.
 Probably one quiet day, when feeling quite bored with Olympus,
 Jupiter looked toward the earth and, snitching a test tube from Vulcan,
 Dipped from the spring of the gods a portion that equaled one cc.,
 Laid it away in the sun, and then called to a Standardized Mercury,
 Saying, "Just watch this, old man; from fifteen, centigrade it to sixteen."
 Thus was the calorie born, but so small seemed that heat-unit infant
 Straightway they fashioned another and made it a thousand times greater.
 "How can we take this to man? How *can* we deliver the measure?"
 "Call me three slaves," said the god, "let them henceforth govern the cosmos.
 "Summon the Proximate Principles: Fat, Carbohydrate, and Protein.
 "Theirs shall the task be to carry our marvelous prodigy earthward."
 So was it done, but before they departed, the three mighty magnates,
 Rose from the spot a fine mist and enveloped Jupiter's throne room.
 Chilled by the air of Olympus it fell in the form of fine droplets,
 Over the marble it splashed, and the gods sought their raincoats and rubbers.
 Jupiter's knees then it clasped and moaned with disconsolate weeping,
 "Father, the giver of calories grieves, unrewarded, forgotten;
 "Best of Olympian Springs and most chemically pure of all waters,
 "Shall these new rich ones ignore my essential presence among them?"
 "Dear me," said Jup to himself, "I sure have been mighty forgetful,
 "My, what a row I'm provoking if three have all of the power,
 "Laborers aren't what they were, and we can't have strikes on Olympus."
 Gravely he pondered while stroking his beard and his prominent forehead
 Said then these words on which hung all the nutritive fate of the nations,
 "Water, in lands wet or dry, be you of all foods an essential;
 "Never without you shall function Fat, Carbohydrate, or Protein."
 This is the tale of the calorie, Unit that ruleth all empires,
 Bolshevik he of the Bolsheviks, commonest he in all Communes,
 Shaping the outcome of wars, unshaken though governments totter.

M. H.

THE LAY OF THE VITAMINSTREL

The times are long and changed the earth
 Since calories had celestial birth;
 Our trust in Proximates grows cold,
 That standard's now infirm and old.
 No longer simple calories
 Can keep us free from dread disease,
 Not tho' von Pirquet conjure them
 With novel measurement and Nem.
 The proteins in the bean and wheat

We find are sadly incomplete;
Naught wreaks to put in overtime
Consuming iron, phosphorus, lime;
Add cellulose and ample water—
Still we don't function as we'd oughter.
Awhile we thought the wicked lack
Lurked on the amino-acid track,
And fought with protein building-stones,
The same as in our flesh and bones;
The colloid and the frisky ion
We've sought to master and rely on;
And the bacillus known as Bulgar
We've worked till buttermilk is vulgar.
In kitchen, hospital, and lab
The learned seek the fiend to nab.
Science cuts down the barnyard quorum
With polyneuritis gallinorum;
Imprisons many a guiltless rat,
First makes him thin, then makes him fat;
While scores of humble student flunkies
Attend on guinea pigs and monkeys.
It seems, poor beasts, a scurvy trick
To make you xerophthalmic, sick,
But not in vain your sufferings,
You rickety, neuritic things!
At last, across our ignorance
We see a mystic Something dance.
Is it substance or property?
And is it one or twenty-three?
(Today it's three—no doubt before
They print this, 'twill be several more!)
Why lurks it in the butter-pat
And not in lard that's just as fat?
Why in the Chinamen's queer soy
And not in Boston's weekly joy?
The sailormen of olden times
Got what from lemons, not from limes?
May we feed babies canned tomatoes?
And shall we bake or boil potatoes?
And when we know just where to claim 'em,
Then say, ah say! What shall we name 'em?
O dire confusion! Some there be
Who term it food accessory;
Still more wax fierce and voluble
For fat and water soluble;
While others preach the A, B, C,
Of nutritive deficiency.
Does *amin* fit? Not on your life!
Still let it end the wordy strife.
The classic fogies quit the scene,—
All hail the romantic Vitamine!

H. A.

FOR THE HOMEMAKER

THE RESPONSIBILITY OF THE CONSUMER FOR FOOD STANDARDS AND PRICES¹

AGNES FAY MORGAN

Department of Household Science, University of California

Nearly every person in the United States has been made familiar in the last fourteen years with at least the name "Pure Food and Drugs Act of June 30, 1906." This federal act operates only in interstate and international commerce in food and drugs. Any product made, sold, and consumed within the boundaries of a single state, therefore, cannot be held amenable to this law. For the protection of its citizens, then, each of the states has enacted food laws of its own, most of them similar to or identical with the federal law, some less stringent than that law, others more so. The result of these varying regulations is sometimes rather confusing, and certainly the expense of the manufacturer of any widely sold food is greater than if more uniformity prevailed. There has recently, however, been appointed a joint committee on Definitions and Standards made up of federal and state food officials, which is paving the way effectively for the adoption of uniform food laws among the states.

As consumers we are interested in this uniformity chiefly for economic reasons. A food product which can be put up in one container under one label with one standard of content for the whole country is apt to be cheaper than one which has to be varied in order to be legally salable in various states. It is the object of this discussion to point out the definite cost to the consumer which all food law protection has involved.

The "Karo" case. An example of the effect of diversity in the state food laws may be cited from the bitter plaint of the Corn Products Refining Company of Chicago. This large and influential corporation markets a great variety of food and other materials made from Mississippi Valley corn. The starch of the corn when subjected to the action of strong acid

¹ Reprinted from the *University of California Chronicle*, July, 1920.

at a given temperature for a given length of time hydrolyzes, or breaks down largely into glucose, although the less completely hydrolyzed products, dextrine and maltose, are present also in considerable quantities. Glucose is an entirely innocuous substance, of equal food value with any other sugar, and when sold under its proper name, and for the low price that it should command, is an honest and valuable foodstuff. However, a prejudice against glucose as such exists in the public mind, for the reasons probably of its supposedly artificial origin from starch and its lack of sweetness when substituted for cane sugar. The Corn Products Company consequently desires very much to obviate the use of the word "glucose" on the label of their various table syrups. The fancy name "Karo" was adopted for one of these syrups purposely to abide by the federal law which does not require a statement of ingredients if a package food is offered under a distinctive proprietary name. But many of the states do so require an accounting. Thus, in Kansas, Karo has to be described as such a per cent glucose and such a per cent cane syrup; in Wisconsin it is necessary merely to state that the product is glucose with cane flavor; in Virginia the percentage has to be given; while in most states the description "corn and cane syrup mixture" is sufficient. This case has been fought out in the supreme courts of at least two states with a favorable decision for the Corn Products Company in that the words "corn syrup" may be used instead of the word "glucose" on the label.

But where is the consumer involved in this case? His prejudice against the word glucose, his knowledge of the possible cheapness of any glucose product, and his intelligent criticism of the high price of a glucose syrup explain the determined campaign of the manufacturers for the name "corn syrup."

The costs of long-continued litigation, and of the advertising campaign to popularize the mysterious natural corn syrup, assuredly do not lessen the price of the commodity itself. State food laws uniform with each other and with the federal law would obviate the whole struggle, since one decision would settle the matter for the whole country.

The objects of food laws. Food laws, state and federal, have two objects: (1) the protection of the public health, (2) the protection of the public pocket book. Under the first of these, which we may call the hygienic aspect, may be grouped four main varieties of protection, having to do (1) with the condemnation of unclean or putrid foods, (2) with the forbidding of the use of injurious preservatives, coloring, or bleaching agents, (3) with the spread of disease germs, (4) with the devitalizing of foods.

The food inspection. The federal meat inspection regulations are the best example of the first variety of protection. The inspection of food animals before and after slaughtering, of sanitary conditions in packing houses, and of the finished meat products is now carried out for the most part efficiently and honestly. Canned goods, eggs, fish, and milk are the chief materials which the food officials must watch for indications of decomposition and consequent danger to health. There is practical unanimity of opinion among consumers and inspectors alike as to the edibility of such spoiled goods, and the manufacturer is likewise often civic-minded enough to be unwilling knowingly to sell such food to the unsophisticated purchaser. The reported cases of so-called "ptomain-poisoning," "sausage and shell-fish" poisoning are far fewer now than ever before, chiefly as a result of the activity of food inspectors.

"Swells" and "springers" as spoiled canned goods are called, are unfortunately sometimes removed from the tell-tale bulging can, sterilized, and recanned for the market. This practice is difficult of suppression, and can be detected only by constant factory inspection. Spoiled eggs are broken, packed in tin cases at low temperatures, and sold to bakers as "cooking or liquid eggs." The food officials have recently been rather active in prosecutions for this offense. Spoiled butter is reprocessed or renovated, and placed again on the market, and this is allowed under proper labelling. According to a recent cartoon in a San Francisco newspaper, ancient fish painted fresh every day or two, given new glass eyes, and a coat of varnish might be sold as perfectly fresh to the gullible housewife, if it were not for the watchful care of the food inspector.

In some cases there may be a question as to the entire justification of the wholesale condemnation of slightly fermented foods if proper sterilization has been carried out. Certain canned foods might be reprocessed and sold with an honest description of their history and at an appropriately low price probably without danger to the public health. This is one of the economic as well as hygienic aspects of the food problem which deserves intelligent consideration. A case in point is the reprocessing of butter. If the consumer can be made to understand the possibilities and also the limitations of such conservation, the first step toward a return to rational economy will have been taken.

Further, the condemnation of damaged but usable goods by food officials for the reason that producers and jobbers, if allowed to sell the food at all, will demand full prices therefor has recently been the subject of some discussion by state authorities. The writer recalls the case

of a large consignment of rain-damaged prunes of the crop of 1918, some of which the State Board of Health ruled might be sold under that name, although at first the decision had been for condemnation of the whole lot to use as hog feed only. Although these prunes were eventually sold at very slight reduction below the high market price, the total food available for home use and for export was thus increased.

Botulism. Of peculiar interest to Californians is a newly emphasized type of food poisoning known as botulism. This is caused by toxins produced by the *Bacillus botulinus*, formerly thought to thrive only in meat or other protein-rich foods. In recent years its deadly presence has been proved in a fairly large variety of canned vegetable foods as diverse as string beans, apricots, ripe olives, asparagus. This organism seems to exist in a wide variety of places, but to occur more frequently on the Pacific Coast and in California than in any other part of the United States.

When the spores are present in food canned by the usual household method or even by the more effective commercial process, their activity in toxin production is unimpaired, and the eating of even the smallest portions of such food usually results fatally. To be sure, cases of botulism are extremely rare, when the quantity of canned food consumed daily is taken into account, but active research into the occurrence and means of prevention of even these few cases is now being carried on. Wide diffusion of information as to the possibility of such poisoning should become part of the duty of state and federal food officials, so that all canned food showing traces of decomposition may be rejected immediately. Since it is believed that, if canned food is heated to the boiling point for five to ten minutes before being served, the danger of botulism is greatly lessened or entirely removed, the effort should be made to spread this information in order that this safeguarding habit may be adopted by the largest possible number of consumers.

On the whole the protection of the public health from dangers due to food grossly contaminated by filth and decomposed by the action of micro-organisms may be said to be fairly adequate.

The use of preservatives. The second hygienic aspect of the food laws, that concerned with the regulation of the use of added preservatives, artificial coloring, flavoring, or bleaching agents, presents a more complicated condition. Many interested consumers are familiar with the famous contest between authorities as to the harmlessness of some of these substances. Dr. Harvey Wiley began the campaign against preservatives with a series of experiments upon human subjects, the "poison

squad," the results of which he declared showed conclusively the danger of the use of any preservatives added in any amount whatever. The substances under consideration were borax, boric acid, salicylic acid, sulfites, or the "sulfuring" process, copper salts (for greening peas and beans), formaldehyde, benzoic acid, and sodium benzoate. There was so much protest against his findings and so much criticism of his experimental methods that the Federal Government appointed a board of referees composed of five well-known physiological chemists, each of them at least equal in professional reputation to Dr. Wiley, to reinvestigate the matter. After a long series of careful experiments carried out individually by these men, some of Wiley's findings were reversed. They concluded that, in the small quantity in which some of these preservatives are apt to be used, no detectable harm to health need be feared. The use of formaldehyde and copper salts was forbidden, but the use of benzoic acid, sodium benzoate, sulfur dioxide, and sodium sulfite was allowed, provided the amount used be specified on the label. These conclusions were afterwards verified by a series of careful experiments made for the former Imperial German Government.

The significance to the consumer of this long drawn out and much talked of contest now lies only in the principle of the matter. The actual quantity of chemically preserved food which is apt to find its way to the family table is very small indeed, largely as the result of these investigations and of legislation. The chief food affected is commercial ketchup, a condiment only, and one which is more apt to serve as an ornament on the boarding house table than as a stable addition to a common sense diet.

The so-called natural preservatives, salt, sugar, wood-smoke, saltpetre, spices, and vinegar are not forbidden in any amount by the food laws. And yet there is grave doubt whether when used in immoderate amounts any or all these substances may not prove injurious.

The real objection to the use of preservatives lies in the fact that more or less decomposed foods, and unsanitary methods, may be made profitable to the manufacturer if he is able to avoid the consequent spoilage and unsalableness of his product by preserving to it at least the appearance and smell of freshness through the use of such substances as benzoates or sulfites. Honest ketchup for instance, unpreserved in this way, is on the market, and should be used to the exclusion of the questionable product which must declare sodium benzoate on its label.

The sulfuring of dried fruits. The sulfuring of dried fruits may be mentioned here as a deeply interesting question from California's point of view. The dryers insist that a marketable product of good keeping qualities cannot be made without the use of some sulfur dioxide. Some years ago the U. S. Department of Agriculture handed down a food inspection decision to the effect that not more than 350 mg. of sulfur dioxide per pound of dried fruit might be allowed. The agitation among growers and dryers was immediate and intense. They insisted that in the case of some fruits, such as apricots, peaches, pears, and apples, successful drying could not be accomplished with the addition of so little sulfur. The United States Government withheld its decision, then, till an investigation should show the merits of this claim. The results of that investigation have not yet been published, and meanwhile all the dried fruits are sulfured at the discretion of the producer. It is true, however, that a small amount of sulfuring provides protection against insect infestation, and that the law states that the producer may not use excessive sulfuring to conceal the inferiority of the product or to market an excess of water.

The blame for this condition of affairs should be placed squarely upon the consumer, who demands light-colored 'golden-yellow dried peaches, apricot-colored dried apricots, white dried apples and dried pears, light-brown figs, wistaria-colored raisins, and now bright light-green Thompson seedless raisins. None of these fruits can be supplied in these colors unless in addition to the natural drying process a strong sulfur bleaching be added.

As long as the market calls for these yellow sulfur and brimstone flavored dried fruits the market will be supplied with them by the producers. Sun-dried apricots, peaches, and other fruits are oxidized on the surface to a dark coloration by exactly the oxidative enzyme process which darkens freshly sliced apples, peaches, or potatoes. But such naturally darkened dried fruits cannot find a place in the present market. The California fig, white or black, dries naturally to a very dark color, the Thompson seedless raisin takes on a brown color, the malaga and other raisins become almost black. And all this without the admixture or aid of any "dirt" or dust. But the consumer will not have them when golden-yellow sulfured fruits are obtainable.

(To be continued)

A REVIVAL OF HOUSEHOLD SPINNING

MARGARET WILLIAMSON

Under ordinary circumstances, no one takes any notice of a dusty brown spinning wheel, tottering in its corner of the antique shop. One expects it to be there, just as one expects the rag rugs, the faded Paisley shawls of former splendor, the shimmer of Dutch silver, the deep blue of Steigel glass. But over the door of a New York shop there swings a sign that announces lessons in hand spinning, weaving, quilting, and tatting to be had within. In consequence, this time the spinning wheel takes on special significance, and explanations are required at once. These Mrs. Teller, who has charge of the shop, is happy to give, for she has flung her whole heart into her new project.

"The Society for the Revival of Household Industries and Domestic Arts was founded only about one year ago," she said, "but those of us who are deeply interested in it have great hopes of its future. You may smile, but I actually feel myself a missionary in this crusade to give back to the women of today the homely, creative tasks that their great-grandmothers knew. Scores of women who were engaged in war work for several years find that they wish to continue with something useful and remunerative. You would be astonished to know how eagerly many of them take up spinning, once the idea is presented to them, even if they are able to devote but a few hours to the work and produce only a small output. There is no reason why we cannot raise flax in this country, and spin and weave for ourselves in these days of the scarcity and costliness of linen. In my shop we have used only wool and linen, but of course one may work in silk. It has been estimated that an ordinary spinner, working eight hours a day for two weeks, should be able to spin and weave the material for her own suit. There's a goal worth effort."

According to the reports that Mrs. Teller is in a position to give, women of means and leisure are not the only ones to whom this work appeals. Not long ago she was visited by a representative from the North Bennett Street School, in Boston, where they are considering teaching the wives of the foreign unemployed to spin. A unit at the school has already been formed, and it is hoped to collect wheels enough to enable the women to work in their homes. Also, the work has been proved highly beneficial to children who are mentally deficient, for it requires just enough concentration on the slow-moving thread. In a

number of sanitariums interest in spinning is aroused; physicians are sending their representatives to investigate the matter. Several sanitariums have raised and spun their own flax. The work is not enervating, and it has great therapeutic value. To illustrate the simplicity of the task to an experienced spinner, it is only necessary to say that certain parts of it can be accomplished without even looking at it. In fact, the world's record was established by a blind girl in Ireland, who spun 250 miles of thread from one pound of flax.

Mrs. Teller believes that to weave machine-spun thread is practically time wasted. The result is much less pleasing, having none of the "floats," or little rough places, which occur in the hand-spun fabric. Material that has been hand-spun, she calls "fabric with a soul." As to the durability of these hand-spun and woven materials, most persons have witness in certain family heirlooms, exquisite linen sheets or towels, or quilts of soft colorings and quaint patterns, long beloved of the mountain peoples of the South.

Now, when conditions of labor make one weigh the advantages of being one's own producer and manufacturer, is surely the moment to interest women, particularly those in remote districts, in spinning their own flax and making their own household linens. The Society for the Revival of Household Industries and Domestic Arts hopes to interest women all over the country; it plans to send out teachers, to establish branches, to collect spinning wheels. And this last task is not so difficult as might appear. Wheels lurk in dark corners of many country attics. Often people will give them away. Sometimes, if they are prized, Mrs. Teller undertakes to return family relics, and she carefully marks each with the name and address of its owner. Not long ago a man sent into the city to her a truck load of spinning wheels, some broken of course, but all capable of repair.

"I could tell many curious stories of the happiness that has come into the lives of women through their having learned to spin," continued Mrs. Teller, "and of how this happiness has been passed along. For instance, a teacher in one of the Washington schools has recently become interested in spinning. During winter, she has but one day each week to give to it; but every summer she spends in the mountains of Pennsylvania and while there strives to gain the confidence of the country women, to persuade them to learn to spin. Gradually, after much perseverance, she is near to success. She is also considering inducing the Girl Scouts to take up spinning—a plan of infinite possibility."

Mrs. Teller also told of a young Southern girl, nervously exhausted from overwork during the war, who had been helped back to normal condition by spinning. She worked on wool found in the wellhouse at her old home until she had enough to knit herself a beautiful soft scarf.

A house in East Sixty-first Street built in 1799 by an aid-de-camp to General Washington has just been restored as new quarters for the Society. There spinning wheels already stand before the great fireplace in the kitchen, awaiting the women who have applied for instruction.

A SIMPLE HAND LOOM

A reader has sent us a cutting from the *Christian Herald* referring to the hand-loom weaving industry in India, wherein reference is made to a cheap and simple hand-loom designed by Adjutant F. C. Maxwell, who is in charge of the Salvation Army's industrial work in India, and who during his twelve years' connection with the hand-loom industry in that country has become acquainted with the various textures woven in different parts, from the coarse cloths of the Punjab to the fine silks of Assam. The hand-loom in question is stated to be suitable for either the coarsest cloth or the finest silk, and to be very easy to manipulate, and so simple in construction that the ordinary village carpenter can easily repair it.

These looms are supplied from the Salvation Army loom factory in Bombay. They have been adopted, it is stated, by several Indian Government Institutions, besides being of great service in the Salvation Army's industrial work in India.—*South African Journal of Industry*.

THE RESPONSIBILITIES OF THE HOMEMAKER

MILDRED WEIGLEY

Division of Home Economics, University of Minnesota

The following chart was made in order to show in graphic form a partial analysis of the vocation of homemaking. The chart aims to indicate those responsibilities which are frequently carried either in part or in whole by the homemaker.

Responsibilities of the home- maker	Skill in occupa- tions	Preparation and serving of food	Food standards
			Planning of meals
			Dietary studies
			Care of food
			Scheduling and dispatching
	Construction and repair of clothing and furnishings	Care and rearing of children	Time studies
			Repair of linen, curtains, etc.
			Repair of clothing
	Care of house	Laundrying	Children's clothing
			Physical development of child
			Cleaning operations
	Joint manage- ment of home	Purchasing agent and business manager	Use of labor-saving devices
			Care of equipment
			Arrangement of equipment
			Care of storage space
			Accounts
		Educational man- ager	Analysis of expenditures
			Budgeting
			Balancing and settlement of ac- counts
			Savings and investments
			Marketing
		Establishing char- acter of enter- prise	Cost of food
			Meal planning
			Selection of shelter
			Selection and replacement of equip- ment (including labor-saving devices)
			Selection of clothing
		Social manager	Food requirements
			Child training (reading, play, dis- cipline, formation of habits)
			Standards for food and service
			Standards for individual cleanliness
			Standards for order
		Superintendent of plant	Standards for beauty
			Cleanliness of home
			Standards for clothing
			Standards of business management
			Atmosphere of hospitality
			Recreation—personal, community
			Group relations within family and community
			Scheduling of work
			Efficient oversight of workers and equipment

EDITORIAL

A Call to Service. The great hour of opportunity for the American Home Economics Association is at hand, an hour made possible by the contributions of the home economics worker to the world during the war. The call for even greater service is now being made to every home economics worker in America.

The world is focusing on the health of the human race from childhood to old age. Every association dedicated to bettering human life is calling for more information regarding human nutrition, maintenance of efficiency, and the direct teaching of those basic principles which enter into everyday living. In all these, home economics workers are the leaders who must point the way. The need was never more compelling, the call was never more imperative; they must either forge ahead and assume leadership or surrender it to others.

The International Congress of Home Economics Instruction to be held in Paris in July, 1922, is asking the American Home Economics Association for assistance. It is our opportunity to help direct the trend of home economics education and practice over all the world. Australia is asking home economics educators to come to her and advise regarding the systematic introduction of home economics into her universities and secondary schools. Our own Mrs. Norton is organizing the work for the American College for Girls at Constantinople.

The hour for leadership, for service, for constructive development, was never so full of promise for the Association.

The Atlantic City meeting proved beyond question the intense interest of school authorities and the public in home economics and its constructive program. In developing the policies and the program of work for next year, the Association needs every one of the ten thousand home economics trained women in the United States. Will any one of you fail to answer this challenge to service, to contribute your part to the annual meeting at Swampscott, Massachusetts, June 27 to 30? The Association needs your experience, your help, your point of view. The whole world needs all that America can give along home economics lines. This is a call to service, to leadership for every woman in the United

States who has dedicated her life to bettering humanity through direct scientific, systematic training in home economics.

MARY E. SWEENY.

The New Editor of the Journal. Mrs. Mary De Garmo Bryan, President of the American Dietetic Association, has consented to be editor of the JOURNAL during Mrs. Norton's absence in Constantinople. Mrs. Bryan begins her work with the June issue. For the intervening period since Mrs. Norton sailed in January, Ruth Van Deman, of the Office of Home Economics, United States Department of Agriculture, has been acting for her.

The International Congress of Home Economics Instruction Postponed. Word has just been received from M. Leon Genoud, director of the International Federation of Home Economics Instruction, that the Congress which was to have been held in Strasbourg, on July 28 to 31, 1921, has been postponed for one year and the place of meeting changed to Paris. The committee arranging for this Congress could not complete the preparatory work by the date originally set. With another year in which to think about and plan for this Congress, it is hoped that the American Home Economics Association will have an even fuller representation than would have been possible this year.

A Gram of Radium for Madame Curie. Madame Curie, the greatest living woman in the scientific world, will visit this country about the middle of May, on invitation from the women of America. With her will come her two daughters, the elder also a scientist.

Madame Curie, who is fifty-six years old, is the most gifted of three unusual daughters of a Polish educator. One of her sisters is principal of an important young women's school in Warsaw, and the other is director of a famous sanitarium in the Galician mountains. Madame Curie went from Warsaw to the Sorbonne when a young woman and in Paris married Professor Curie, who met a tragic death by accident in 1906.

Madame Curie has received the Nobel Prize for her discoveries in radium and has also received other important awards and distinctions from several countries. She has put all of the money received from the Nobel Prize and other awards into the founding of the Curie Radium Institute in Paris, where she now works unceasingly. The Institute

was completed in 1913 and was closed during the war because Madame Curie volunteered for work in the army hospitals.

Madame Curie will be able to remain in the United States for but two or three weeks and can visit only a few cities. In these cities groups of the most noted physicians and men of science are coöperating with the women to give this great woman of science a fitting welcome.

The women of America have conceived the beautiful idea of offering to Madame Curie on the occasion of her visit to this country a gram of radium to use solely for her experimental work. She has never possessed such an amount of radium for her independent use. As this gram will cost approximately one hundred thousand dollars, an appeal will be made to the women of the country to contribute the money necessary for the purchase. Home economics workers in all parts of the country will of course want to have a share in this gift, and contributions may be sent to the Journal Office. Checks should be made payable to Mme. Curie Radium Fund.

Calcium in the American Diet. Dr. H. C. Sherman¹ again emphasizes the importance of more attention to the calcium in the diet of American people. He has collected and published comprehensive data on the calcium metabolism of adult man, representing the work of several different investigators and covering ninety-seven experimental days on many subjects. The average calcium metabolism is given as 0.45 gram for the adult man of 70 kilos whose protein requirement is known to be 44 grams. This bare minimum of both protein and calcium should, of course, be increased somewhat in practical dietary planning to allow for a margin of safety. For every 100 grams of protein in the diet there should be at least 1 gram of calcium or 1.4 grams of calcium oxide.

Studies of 224 typical American diets, part of them made by the U. S. Department of Agriculture sometime ago and part more recently by the Association for Improving the Condition of the Poor,² show the average to contain 106 grams protein per adult man, which is 140 per cent above the actual requirement of 44 grams. The amount of calcium in the same diets was 0.74 gram, or only 64 per cent above the

¹ Sherman, H. C.: Calcium requirement of maintenance in man, *Jour. Biol., Chem.*, 44, 21. (Oct. 1920.)

² Sherman, H. C., and Gillett, L. H.: The adequacy and economy of some city dietaries, N. Y. Association for Improving the Condition of the Poor, Publication No. 121 (1917).

requirement. Only one of these 224 families fell below the protein standard while 1 in 6 fell below in the amount of calcium. If the calories in all cases had been increased to 3000 per adult man, none would have been low in protein, while 7 per cent would still have been low in calcium. The explanation obviously lies in the fact that the American diet furnishes too much meat for the amount of milk.

Although, as Sherman suggests, it might be possible to sprinkle calcium onto our food from a salt cellar, it would probably be less difficult to teach the public to use more of the calcium rich foods, such as milk and green vegetables, and such an addition would at the same time furnish the vitamins more abundantly.

Nuts for our Proteins. Nuts deserve, at least in part, the consideration by "nutarians" which has made them an important source of protein in the diet of these food faddists. Nuts were found long ago by Jaffa to be thoroughly digested and quite easily so if taken as a part of the meal. Their high coefficient of digestibility has been demonstrated also in later experimental work by other investigators. As a sole source of protein in rat-feeding experiments conducted by Cajori¹ they have proved themselves according to the criterion of Osborne and Mendel: "If an animal is able to attain adult size upon a diet furnishing protein from a single source the nutritive value of this protein is clearly established."

Cajori in his report states that satisfactory growth and milk production were observed in young rats on diets in which the almond, English walnut, filbert, and pine nut acted as the essential protein. Daniels and Loughlin² two years ago found peanuts and peanut meal capable of furnishing all the necessary amino acids for the growth of rats when the protein from the peanuts constituted 15 to 18 per cent of the total food. Likewise Hoobler³ found that wet nurses could use nut proteins in the form of almonds, English walnuts, pecans, and peanut butter just as efficiently in the production of milk as they could use the animal proteins. With the exception of the nut proteins, the animal proteins were better than the vegetable ones for the elaboration of milk.

¹ Cajori, F. A.: Some nutritive properties of nuts: their proteins and content of water soluble vitamins, *Jour. Biol. Chem.*, 43, 583 (Sept. 1920).

² Daniels, A. L., and Loughlin, R.: Feeding experiments with peanuts, *Jour. Biol. Chem.*, 33, 295 (1918).

³ Hoobler, B. R.: The effect on human milk production of diets containing various forms and quantities of proteins, *Amer. Jour. Dis. Children*, 14, 105 (1917).

The water-soluble B vitamine is present in these nuts in sufficient quantities for growth, as both Cajori and Daniels and Loughlin agree. That the fat soluble vitamine is lacking, however, is reported by both the above as well as by Coward and Drummond⁴ in a recent English publication. The inorganic constituents require supplementing also. It would appear that the much used term "meat substitute" as applied to nuts is an accurate one.

THE QUESTION BOX

Question: Is frozen ice cream which has been allowed to stand in the cans frozen or partially frozen injurious? Would such an ice cream be more likely to contain organisms causing ptomain poisoning than homemade ice cream similarly treated or milk which has been kept in cans for 24 hours? Does it matter how many times ice cream may be frozen, melted, and re-frozen, provided it is not kept for a longer time than the milk and cream from which it is made would have kept sweet?

Answer: In normal cream held for some time the lactic bacteria should exist in considerable numbers. But when cream is held at low temperatures these organisms do not develop rapidly, whereas certain types of putrefactive organisms may develop even at refrigeration temperatures. These, however, would not be present in ice cream produced under sanitary conditions. (Marshall, C. E. "Microbiology," 2nd ed., p. 448.) Refreezing ice cream, therefore, would produce no untoward results provided there were no putrifying organisms present in the ingredients from which the cream was prepared. Such ice cream could be kept considerably longer than the milk and cream from which it was made, provided these were kept at the usual ice-box temperature.

Question: Is there any evidence that the constituents of milk, particularly the vitamins, ash, and protein, are not deleteriously affected and rendered less available for use by the human body by the process of boiling?

Answer: The results of recent investigations indicate that the anti-scorbutic vitamin in milk is not thermostable, considerable destruction taking place even at the pasteurization temperatures. The other two known vitamins, fat-soluble A and water-soluble B, appear not

⁴ Coward, K. H., and Drummond, J. C.: Nuts as a source of vitamin A, *Biochem. Jour.*, 14, 665 (Oct. 1920).

to be materially, if at all affected, by boiling. In fact, milk may be heated considerably above boiling without appreciably diminishing the potency of these two vitamins. The protein also seems to be unaffected by the usual methods employed in heating milk. The most significant changes that take place in milk during the process of heating are in the mineral constituent, especially the mono- and di- calcium and magnesium phosphates. Some of these are rendered insoluble and in this form appear to be less available. These changes in the mineral constituents, however, are not dependent upon the boiling temperature but may take place at pasteurization temperatures. In fact, milk boiled quickly for short periods is less affected than milk pasteurized by the "hold" system. The literature is reviewed in "A Deficiency in Heat Treated Milk" by A. Daniels and R. Loughlin, in the *Journal of Biological Chemistry*, Vol. XLIV (1920), p. 381.

BOOKS AND LITERATURE

The Nation's Food. By RAYMOND PEARL. Philadelphia and London: W. B. Saunders Company, 1920, pp. 274. \$3.50.

In this book we have for the first time data which will enable us to answer the questions how much and what kind of food does the American people as a whole eat. It is a statistical study based on material gathered for the Food Administration. The author has kept in mind the purpose of providing raw statistical material for the student of social and economic problems. He has refrained from any interpretation of the facts presented or from any criticism of the conclusions which might be drawn from these facts.

This study marks a step in the socialization of our economics. The author deals with the food supply, not in terms of dollars worth of production, of exports and imports, but in terms of content of nutrient material. In admirable tables there are presented data showing how much protein, fat, and carbohydrates, and calories are annually produced in forms usable for human food; how much, in terms of these values, is imported and exported; how much is available for home consumption; and how, in each case, the distribution is made among the several classes of food commodities.

The period studied covers the fiscal years 1911-12 to 1917-18. The tables are exceptionally clear and well set up, and a good index makes it possible to use them readily for reference. The procedure by which the figures have been arrived at is carefully given and any limitation to the accuracy of the figures pointed out.

Several important points in the food habits of our people, of which the student in

many fields will be glad to have proof, are interestingly brought out. In fact this book should be of use to a wide range of students, to the student of agricultural economics, of nutritional physiology, or sociology, to the practical social worker, and to the maker of tariffs. All of these persons will find in it definite material for answering many troublesome questions in regard to the size and use of our food supply and for supplying a basis upon which to make suggestions for improvement in the well-being of our people.

CHASE GOING WOODHOUSE,
Smith College.

Elementary Home Economics. By MARY LOCKWOOD MATTHEWS. Boston: Little, Brown and Company, 1921, pp. 343. \$1.50.

This book contains first lessons in Sewing and Textiles, Foods and Cookery, and the Care of the House. The sewing and cooking lessons follow the better type of conventional lessons planned to meet the needs of the girls' wardrobe and the three daily meals of the family. The pages devoted to the care of the house are all too few in number and do not sufficiently emphasize the importance of this portion of the housewife's task, though provision is made for adequate study of kitchen furnishings in connection with the cooking lessons. The book is printed in good type and binding, affording a pleasing appearance, and the contents will undoubtedly prove of value to the young teacher who is teaching sewing and cooking in the grades and who feels the need of help from the experience of others.

CARRIE ALBERTA LYFORD.

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- The Child and the Kindergarten.* Kindergarten Circular No. 6, February, 1920.
Civic Training Through Service. Arthur William Dunn. Teacher's Leaflet No. 8.
Constitution of a Community Association. Community Center Circular No. 1.
Recreation and Rural Health. Teacher's Leaflet No. 7.

Issued by the U. S. Department of Labor:

- Children's Year.* Children's Year Follow-up Series No. 4, Children's Bureau.
The Child-Welfare Special. Children's Year Follow-up Series No. 5, Children's Bureau.
Minimum Quantity Budget. Reprint from the Mo. Labor Review, Bureau of Labor Statistics.

Issued by the U. S. Public Health Service:

- Malnutrition.* Keep Well Series No. 11.
Hygienic Laboratory Bulletin No. 116. (Contains articles on vitamins and pellagra.)

Issued by the Bureau of Applied Economics, Washington, D. C.:

- Changes in Cost of Living and Prices 1914 to 1920.* Bulletin No. 6.
Standards of Living. Bulletin No. 7, 1920.
Wages in Various Industries and Occupations. Bulletin No. 8, 1920.

Issued by the New York State College of Agriculture at Cornell University:

- The Cornell Reading Course for the Home: Thrift Series—Lesson 132, Economics of Good Furnishing,* Annette J. Warner; Lesson 131, Economics of a Sound House, Helen Binkerd Young.

Issued by the College of Industrial Arts, Denton, Texas:

- Feeding the Child.* Juanita E. Darrah. Number 77.
How to Buy, Care For, and Use the Family Wardrobe. Margaret Gleason. Number 79.

Issued by the Armstrong Cork Co., Lancaster, Pa.:

- The Art of Home Furnishing and Decoration.* Frank Alvah Parsons.
Detailed Directions for Laying and Caring for Linoleum.
Told in the Store. (Contains description of laying linoleum.)

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NEWS FROM THE FIELD

The Trustees of Pratt Institute take pleasure in announcing the appointment of Frederick W. Howe as Director of the School of Household Science and Arts, succeeding Isabel Ely Lord, who resigned from the directorship in July, 1920. Mr. Howe comes to Pratt Institute from the State Normal School at Framingham, Massachusetts, where for twenty-two years he has been Director of the Department of Chemistry, Foods, and Sanitation in the Household Arts Department. He is also Scientific Director of the Walker Gordon Laboratory Company, Director of the Food Laboratory of the Boston Floating Hospital, Director of the Garland School of Homemaking, and Director of the Food Laboratory of the Infants' Hospital, all in Boston. His wide and varied experience includes also several years' association with the Massachusetts Institute of Technology as instructor in chemistry.

The Institute is to be congratulated upon having secured the services of a man of Mr. Howe's high professional attainments and fine personal qualities. His ideals for the work and his breadth of human sympathy assure the carrying on of the best traditions of the school and of the Institute. Mr. Howe enters upon his official duties July first. Until this date the administrative work of the school will continue to be carried on by Helen Hollister, Acting Director.

The Institute has announced the discontinuance of the course in teacher training in the School of Household Science and Arts, in order to more fully develop the courses in training for homemaking and in training for trade and professional work.

The University of Kentucky. Through the coöperation of the Home Economics Department of the University of Kentucky the monthly food cost at the House of Reform at Greendale has been reduced from \$3,850 to \$4,810, and better meals have been provided for the inmates.

The work of planning the menus and the budget was done by Anne McAdams, a senior in the Home Economics Department, who graduated in February. Upon her graduation, Miss McAdams was appointed state dietitian under the direction of the State Board of Charities and Corrections.

The University of Florida. The new General Extension Division, which represents all state institutions of higher learning, has made an unprecedented record by enrolling 5804 students during the first twelve months of its existence.

Oregon Agricultural College. Because homemaking is the occupation of the majority of women, and because the School of Home Economics realizes the importance of training for that work just as for any other profession, a one-year Homemakers' Curriculum has been established. This curriculum provides especially for those women whose school does not qualify them to enter the regular courses, or whose duties demand that they content themselves with a short period of training for their life work, or whose aim in seeking training at the College is exclusively practical.

The second annex to the Home Economics Building was opened on March 12, 1921.

The University of Virginia is planning a special three months course for prospective nurses, to be given during the summer quarter. This will include anatomy, physiology, sanitation, dietetics, bacteriology, pathology, and the history and ethics of nursing.

The purpose of the course is to give the theoretical work before nurses enter upon their practical training, and to shorten the term of training now required.

Russell Sage College, Troy, N. Y. A conference on household economics was held February 11 and 12 for the faculty and students of the college and for those in the community who were interested.

The topics considered were grouped under the three headings: Problems in Nutrition, Household and Institutional Administration, Training Teachers of Home Economics. Among the speakers from other institutions were Anna Cooley and Emma Gunther, Teachers College; Cora Binzel, Cornell University; Myrtle Caudell, State Normal School, Buffalo; Mrs. Mary De Garmo Bryan, President, American Dietetic Association.

Special Instruction in Homemaking. A special type of instruction in vocational homemaking has been organized in Bakersfield, Cal., for Mexican girls who were not making satisfactory progress in school because they could not read and speak the English language.

These girls prepare and serve lunch for 14 teachers, and also a free lunch for 30 undernourished children from the school near by. They are given the full responsibility for the preparation of the food each day. They are taught general housekeeping processes, house furnishing, and the care of children. Last year they made a complete layette and took entire charge of a three-year-old boy while his sister attended school for three

months. They make their own clothes and often wash and iron them at school.

The informal organization of the work affords opportunity for free discussion of good standards for home and community life, and improvement in the English language.

An Institute for the Training of Nutrition Workers will be conducted under the auspices of the Elizabeth McCormick Memorial Fund in Chicago, Illinois, June 13 to 28 inclusive. Dr. William R. P. Emerson, of Boston, will give the lectures and class demonstrations, assisted by members of the staff of the Elizabeth McCormick Memorial Fund. For information write to the Elizabeth McCormick Memorial Fund, 6 North Michigan Ave., Chicago, Ill.

NOTES

Mrs. Ann Gilchrist Strong, formerly of Beroda College, India, is now professor of household arts in the University of Otago, Dunedin, New Zealand.

Among the contributors to a recent volume, *America and the New Era*, is Dr. Sophonisba P. Breckinridge, Assistant Professor of Social Economy in the University of Chicago. This book is concerned chiefly with social reconstruction, and has an introduction by Herbert Hoover. Other contributors are Richard T. Ely, Francis G. Peabody, and Frederic C. Howe.

Dr. John M. Thomas of Middlebury, Vermont, has accepted the presidency of State College, Pennsylvania. This is an appointment of special interest to home economics workers because Doctor Thomas is deeply interested in rural community problems and rural life in general, and has written and spoken a great deal about service in rural districts.

The Fourteenth Annual Meeting of the American Home Economics Association will be held at the New Ocean House, Swampscott, Mass., June 27 to 30. Further announcement will appear in the June Journal.

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No. 6

FEEDING PROBLEMS IN THE LUMBER CAMPS OF THE NORTHWEST¹

JESSIE ROTHGEB MUELLER

Department of Home Economics, University of Washington, Seattle

Lumbering is one of the most important industries of the far northwest. Washington, Oregon, and Idaho are widely considered the center of the world's lumber industry. The State of Washington leads the other two, having three hundred logging camps and eight hundred manufacturing plants. Washington alone has forests consisting of thirteen hundred billion feet of merchantable timber, and of seventeen hundred billion feet located in the mountains and at present considered unmerchantable. The indications are that the industry will be permanent, and the various lumbermen's associations are helping in this. The manufacturers, for instance, are holding frequent conferences and originating bills to be introduced into the legislature to save and perpetuate our forests. This industry, therefore, deserves our best efforts in the solution of its feeding problems.

In order to be of assistance in this work, we must first learn the conditions and problems with which the industry is contending. The writer had made a light survey of existing conditions. Personal inspection was made of camps, and data have been compiled from over forty questionnaires received from logging firms. The questionnaire took up the matter in detail, and consisted of forty questions.

¹ Presented at the Thirteenth Annual Meeting of the American Home Economics Association, Colorado Springs, June, 1920.

The camps are situated in the woods, miles from markets. This makes it necessary to have in the camp various types of men; it also makes the problem greater than if labor could be picked where living conditions are not difficult. Under normal conditions, practically all camps operate ten to twelve months and accommodate an average of eighty-five men. As the trees are cut the camps must move, and many of them stay only from two to four years in one location. This necessitates the building of portable camps, which are often wide car-like buildings constructed on wheels and easily moved by rail. These cars are well built, have ample room, and are usually kept very neat and clean.

The labor is cosmopolitan, consisting of Norwegians, Swedes, Americans, Poles, Italians, Austrians; or as one man puts it, "We employ every white race on earth." So far the colored and yellow races have not been used, except for general construction work especially in the building of railroads. Naturally such a group is hard to satisfy, and many of the camps are infested with obstructionists. One reply says, "They are the type that expect the best without reason." These men are unsteady, the average time at one camp being about six months, though cases are known where men have stayed ten years. There are also many timber tramps who go from camp to camp, staying one or two days until well fed, when they quit and go to town, or hire out at some other near-by camp.

Eight hours constitute a day's work, which is physically strenuous. It consists of rigging, felling, bucking, sawing, and loading. But all the men do not work conscientiously; as one large lumber company replied, "They all work eight hours, except the 'I. W. W.' and they don't want to work at all." Another firm sarcastically answered, "Yes, some work eight hours; others lazy on the job all day, just pretending to work."

Some companies believe that they must give the food the men want in order to hold them. Sometimes a company will spend more on food and make up the loss by paying the men less. The charge for meals to the men varies from 35 to 50 cents, the average being 49 cents, while the average cost to the companies is 46 cents. The questionnaires showed that 50 per cent were running their cook houses at a financial loss, one camp reporting a loss of \$600 a month. A camp manager says: "Through this part of the country a large expense has been added to feeding the

men from the fact of each camp vying with every other to see who can feed the men the best, thinking by so doing they will be better able to retain their men. This is, to my mind, a mistake. What should be done is to standardize the food, giving the men good wholesome food, plenty of it and in good variety, well cooked and well served, everything clean and wholesome." Scientific and practical management can possibly remedy this, as there seems to be no reason why feeding the men should be a burden. The companies do not desire to profit on the meals but they do want to "break even." Beneficial suggestions on buying, cooking, and eliminating waste can come from our universities.

The menus are made out by the cook, who also does the ordering. The food is placed on the table, and the men help themselves. Dishes are replenished as soon as they are low. The proprietor of one camp says, "Plenty of everything is the only thing we go by." The breakfast menu generally includes cooked cereal with milk, sometimes cream; a meat, such as bacon or chops; eggs; biscuits; potatoes; milk and coffee; doughnuts; and fresh hot cakes. The hopeless attitude on the part of the management is shown by such remarks as: "It is not uncommon to see a man eat six eggs and one pound of bacon, drink three cups of coffee, and leave the table grunting that the food is no good." For dinner, or noon-day meal, the men are served at least two kinds of meat, three kinds of vegetables, potatoes, pastry, pie, cake, pudding, cookies, milk, coffee, tea, hot breads or two kinds of bread. At supper, they eat a meat, usually steak or chops, with a cold meat too, potatoes, two vegetables, very often fruit cakes, and some pastry. The day's consumption of meat will average 16 ounces per man; of potatoes, 17 ounces; of coffee, 1 ounce. The main difficulty seems to be not in the quality but in having all the variety at one meal.

The buying is done principally through purchasing agents, storekeepers, and camp bosses. The quality is the best, although better selection according to food values and with the idea of having variety in the menu during the week and not all in one day would be an improvement.

It has been found difficult to offer the required number (5000 to 6000) of calories without having an excessive amount of protein in the diet. Associated with this is the habit of excessive meat consumption, which the men desire mainly for flavor. One questionnaire states as follows: "The working men of today demand the very best that money

will buy regardless of cost. We set a regular camp table as all logging camps do, so everybody can help himself to anything he wants. There is nothing wasted by the cooks but a great deal by the men themselves, as they figure on getting their money's worth. From the loss you can see that they are getting it." Another says: "We give them most everything the market affords, all kinds of fresh or salt meats, eggs, all the fresh milk they can drink, plenty of everything the season permits."

No butter substitutes are used, and, during the potato shortage, all camps served potatoes twice a day and a great many three times. Of the forty-two camps, all except four were using fresh fruits occasionally; twenty served no fresh milk and used canned milk only. Every camp has an excellent water supply from the mountain springs. Not only is the best of foodstuffs purchased, but the cooks are well paid. Wages range from \$125 to \$200 per month with living, while the average is \$150. Helpers and dining-room workers receive an average of \$80 a month.

The cooking is done in the movable cars already described. They average about sixty feet in length, and some of them show features of a modern hotel kitchen. There are cabinets for pastry and other foods, and the serving tables are covered with metal. The commissary cars have quarters for cooks at one end and a meat house at the other, while in the middle of the car are shelves and bins on metal rollers, and adjustable shelves for supplies in barrels. The meat rooms are equipped with galvanized iron screens and shutters on the outside to give shade.

Very few camps have cold storage facilities, and waste results from being unable to keep meats and other foods fresh. Every camp has its own store. More modern camps have theirs equipped with proper refrigeration where meats can be left until ready for camp. Most camps raise hogs which are a means of using the waste.

One of the most important needs is standardization of food. This will eliminate the continual moving on the part of the men. Camps, at present, are competing with one another for men by serving better food.

Another need is better management. Much can be accomplished by showing the value of coöperation between the cook and the buyer. It would result in better planning and more economical cooking, as the buyer is versed in prices. Substitutes for expensive foods could be made; the cost of different dishes could be accurately worked out; and

the buyer, who is often also the manager or owner, could watch waste and suggest improvements.

Better facilities are essential. Many camps have stores, electric lights, shower baths, and modern conveniences; they also should have better cooking apparatus. Ice plants would prove very valuable and would save waste. Left-over foods could be saved, and cool foods and drinks could be served cold. Labor-saving devices would not save labor cost, but they would enable the same help to apply more time to planning, and, in some cases, they would prove wise economy.

The government has discovered that the cafeteria plan is more economical. It should succeed in the lumber camps, although to start such a movement would arouse opposition. In cafeterias, men may order what they want, and regulate the size of the portions and the amount they spend for their meals. Against such a plan is the fact that the men are tired and would rather be served.

At the present time, there seems to be a gap between the university and the business world. This must gradually be eliminated and much has already been done along this line, especially in the commerce schools of the country. Coöperation between our department and the outside world can more quickly be accomplished by giving practical assistance.

The questionnaires show that the managers and superintendents are divided according to their attitudes or points of view. There are those who realize that the problem might be solved by scientific study, first, of cost accounting, second, of balancing of menus. There are those who, realizing that they are failing in feeding problems, would like to better conditions, but do not know how to proceed, and would have to be convinced that suggestions of the trained worker would benefit them. The defensive and skeptical lumbermen believe that what they are doing is better than that which any one may suggest.

For the trained worker in industrial camps, there is a wide field. The best opening would be in the camps that believe their problems can be solved. The University of Washington has been approached by one lumberman with the suggestion that his camp of seventy-five men could be used for an experiment by the trained worker. This illustrates that the lumberman, who is one of the most practical of business men is ready to grasp the opportunities at the university.

TRAINING GIRLS AS CONSUMERS¹

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The factors involved in training girls as consumers and the best methods of teaching these factors are questions of importance in this age of economic unrest. We are responsible for providing all types of girls with this fundamental economic background; boys may also be included. Opportunities for teaching these factors are afforded in the unit courses in part time and evening schools, and in the day schools and colleges. The amount of time this training will require will depend upon the functioning knowledge of the evaluation of expenditures for various commodities that the girls previously gained. An analysis of the needs of the girls as consumers is our starting point. Job analysis, including the elements of the problems, the information needed, both pertinent and related, the standards and terms, is being thoughtfully applied to all phases of home economics teaching.

Girls may be divided into two groups according to the sources of their income: (1) those pursuing their education or staying at home, who depend upon allowances; and (2) those earning their living, who depend upon wages. An analysis of their financial obligations shows expenditures for clothing, food, housing, running expenses, and "higher life" or "greater happiness." A class of little girls interpreted the term "higher life" as meaning "heaven." Upon thoughtful consideration they decided that church, savings, better educational opportunities, and recreation meant "greater happiness."

All girls are primarily interested in their clothing. The girls' revision of their spending habits for clothing quickly brings forth convincing results. The clothing factor requires a detailed study of shoes, stockings, gauze underwear, corsets, underwear other than gauze, dresses, suits, hats, gloves, and other accessories. Evaluation of one article of clothing is sufficient subject matter for one or more lessons. Let us take the study of shoes as an illustration; the girls will need to consider the kinds, cost, use, style, make, quality, and care as influencing durability, appropriateness, and quantity. Illustrative material is invaluable, and can be obtained from the shops and the homes. Visits to the shops assist in teach-

¹ Presented at the meeting of the American Home Economics Association held in connection with the Division of Superintendence, N. E. A., Atlantic City, February, 1921.

ing shopping ethics, including methods of payment. Advertisements from newspapers and magazines and catalogs from mail order houses give information. The instructor has an opportunity to demonstrate principles of economics, art, and personal hygiene in her own costumes.

The value of each article of the wardrobe may be weighed in this manner. Evaluation of the time spent in construction, whether hand or machine, enters into the estimation. The girls may organize the data for each garment under selected headings and record it on library cards arranged alphabetically or according to topics. Helpful illustrations may be mounted on these cards. The data may be easily revised as the styles and prices change. A desire to learn how to buy clothes intelligently is readily developed when the girls are dependent upon wages or an allowance. The productive aspect enters, that is, the care and repair of clothing, and the construction when time permits. Proper care means a reduction of the number of garments required. Girls want to know just how they may meet their clothing needs and have money left for their other necessities. They now feel the need of personal accounts as proofs of their daily or weekly expenditures for clothing.

These lessons afford opportunity to use the socialized recitation. For example, a group of girls may be responsible for reporting data on sensible heels for shoes. The others, including the instructor, note the main facts presented by the chairman. The discussion leader finds the girls eager to tell vital points that may have been omitted or inaccurately stated. One test of the value of such an estimate of the wardrobe may consist in having the girls assemble a suitable wardrobe covering a period of possibly two years; another, the evidence of improvement in the personal appearance of the girls, showing an application of the principles of art, economics, and personal hygiene.

Evaluation of the necessary food intake confronts the girls. They need milk, vegetables, fruit, grain products, and fats; meat, fish and sugar are optional.² Most girls will eagerly determine whether they are underweight. Where time is limited, direct information on the variety, amount, and cost of food is needed. Habits of choosing nourishing foods are to be developed. A brief survey of some home economics college seniors proved that they had not formed the habit of the daily selection of adequate food in relation to its variety, amount, and cost. These students were asked to make food charts, listing in detail the varieties under each main division, and recording daily the variety,

² How Can Our Work in Foods be Made More Vital to the Health of the Child. Lucy H. Gillett, *Jour. Home Econ.*, Sept., 1920.

amount, and cost of their food intake. Such charts may include a record of the number of meals eaten per day and the time spent in consumption. Again, personal accounts serve as proofs of the daily expenditure for food. The simple "food intake" cards are being used successfully with younger girls. Since good health depends not alone on intelligent food habits, other items may be added to the cards, for example, the number of hours for sleep, recreation, and work; the daily bath, the daily evacuation, the daily water intake. For if a girl is to make her limited allowance of wages cover her necessities she must develop good health habits in order to reduce the amount spent for medicines and doctor's services. Good health habits may also increase the girl's productivity.

Girls may have to consider expenditures for housing facilities. What kind and how much does a girl need? Minimum standards call for a portion of a simple, sanitary, and artistic bedroom, and a proper recreation unit aside from the bedroom. Storage space is a welcomed asset. Evaluation of the bedroom equipment may be developed and recorded on cards in the same detailed manner as the necessities of the wardrobe. This method of evaluating bedroom furnishing may be applied to all household furnishings. Light, heat, ventilation, and proximity to the school or work are essential considerations. Theoretical knowledge of taxes, mortgages, and other business transactions may be considered under the investment factor.

Girls' running expenses may cover a wide range of items, such as carfare, postage, cleansing materials, and cosmetics. Again they will need to weigh values based upon kinds, uses, amounts, cost. For example, an analysis of the selection of cosmetics revealed the need for reappportioning expenditures for the quantity and kinds formerly thought necessary. Data for the running expenses may likewise be kept on cards.

When girls have completed their first estimates for their clothing, food, shelter, and running expenses, they invariably find that they do not have an adequate amount left for the last factor—"greater happiness," or advancement. They find that they must go over their record cards for each division of their income and apply the elimination or reduction process, cutting down on the amount and kinds of different commodities formerly felt to be indispensable. Several revisions are needed to provide the desirable balance. Expenditures for "greater happiness" are partly determined by the influence and economic status of the community. It is necessary to obtain a basis for discussion by having the girls keep a record, for some weeks previous, of the amounts expended for church,

savings, educational advancement, and recreation, including movies, parties, and ball games. The amount spent for recreation is usually out of proportion to the amounts set aside for church, savings, thoughtfulness toward others, and education. A girl who has worked hard to revise her ideas of the amount and kind of commodities she needs and can afford, in order to have a balance left for "greater happiness," is usually keen to analyze and revise her expenditures for recreation. Attention drawn to the provision of recreation for the mother often increases the girl's zeal in investigating kinds of wholesome recreation that are possible without excessive cost. Wisely selected reference and illustrative materials are needed. Coöperative contacts with church, business, and educational and social organizations are indispensable in helping girls to evaluate the constituents of "greater happiness." These contacts should provide opportunities for the girls to participate in the activities of these organizations as well as to receive information from the leaders of these community assets. Again the card system is effective for recording data for each topic considered. For example, the topic of investment will necessitate a card record for each investigation made, such as data on banking facilities, building and loans, bond issues.

Laborious methods of keeping personal accounts defeat their own purpose. Daily expenditures for commodities may be jotted down, at the time of purchasing, on a small card kept in the girl's pocket book. These items may be totalled daily or weekly on a summary card ruled so as to cover a record of a month's expenditures. A simple summary card may contain one column for the days of the month; several columns with self explanatory headings, covering the girl's classified needs, e.g., room rent, food, clothing, laundry, traveling expenses; a column for daily totals; and one for all money available. Girls need considerable assistance in forming the important habit of systematically balancing these accounts at definite intervals. For upon this factor, that is, checking the leaks, rests one of the greatest benefits of account keeping. By analyzing the total expenditures under each main heading and comparing them with amounts set up by statisticians as being in correct proportion to the total budget, the girls are stimulated to decrease expenditures for personal purposes and increase the amount for savings and thoughtfulness toward others.

We all realize that women are taking their places in the world in ever increasing numbers; that they need a strong background in economics to support their ever increasing responsibilities. Since the girls are our women of tomorrow, let us avail ourselves of every opportunity for affording them this vital economic foundation.

THE SCHOOL PROJECT¹

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It has been said that home economics is an ideal "project subject," that it lends itself readily to this method; nevertheless we approach the subject as warily as teachers of other subjects, and it takes a real jolt to startle us into the realization that we need to change our point of view.

The jolt has come gradually through the realization of the facts that much that is taught in the schools fails to carry over into the lives of the girls whom we teach; that the enrollment in our high school classes has been, in many cases, on the decrease in the last few years; that the aims set down by educators somehow fail to reach and influence everyday teaching.

The project is far from being a remedy for all our ills but it is fair to say that good project teaching, consistently dominating class-room procedure, has a very definite influence on these conditions, for good project teaching demands contact with the home. Home projects become by-products of school projects. Project teaching meets the matter of the decrease in enrollment by demanding a careful study on the part of administrators of the particular interests and instincts of girls at different ages. It broadens and enriches our aims by virtue of being a project, in the sense that is meant by those educators who say that the project aims to produce individuals who are able to meet life situations adequately.

I like to think of the project as a point of view. When our teachers of home economics grasp the spirit of project work it will be unnecessary to seek for definitions. The idea is flexible and allows for interpretation, the various interpretations depending upon the personality and type of mind of the teacher and her students.

If we are going to approach our work from this point of view an entire reorganization is necessary in our thinking. The child, rather than the subject matter becomes the center of interest; and we use our logical outline to keep us on the track as it were, and to safeguard minimum essentials.

The following projects have been carried on with varying degrees of success in Wisconsin:

¹ Abstract of address at the meeting of the American Home Economics Association held in connection with the Division of Superintendence, N. E. A., Atlantic City, Feb., 1921.

A seventh year project: "A Saturday morning project." To find out the best and quickest ways of doing those things on Saturday morning which are our share in the business of homemaking.

An eighth year project: To ascertain whether or not the girls in this class are eating the right kind of food, and to plan and prepare wholesome meals for eighth grade girls.

A ninth year project: To determine the minimum amount that is needed per day in this town to feed a family of four consisting of father, mother, a boy of 12, and a girl of 14.

A tenth year project: To make a two weeks' study of the best way to put on a successful school lunch in this school, and to put our plans into practice during the months of December, January, and February.

J. A. Moore gave the following test of a project in a recent number of *School and Society*: "A project expresses a felt need growing out of the environment. It recognizes the native instincts and interests of the pupils. It calls for related material. It provides for organization on the part of the student."

Our child-care project, "What must a seventh grade girl know about the mental and physical care of the child in order to take care of her baby sister," measures up to the test in this way: It meets a felt need growing out of the environment, in that most seventh grade girls have little brothers and sisters at home, or occasionally help a neighbor by caring for the baby. It recognizes the instincts and interests of the pupils because these girls are near enough to the doll stage to be intensely interested in babies and their care. The problems discussed from day to day call for related material from various fields, child psychology, citizenship, social relationships, and social hygiene. That it provides for organization on the part of the student is shown by the following story:

A seventh grade student reported in class one day that the woman who lived next door to her did not know how to bathe her baby. "She just puts her in the tub and splashes water on her," the child continued in a shocked voice. Several days later she brought the matter up again in class, saying, "that woman moved away from our street and I got to thinking how badly she bathed her baby, and I just went down and showed her how."

THE HYGIENE OF WOMEN'S UNDERWEAR¹

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Owing to the lack of reliable data on the hygiene of clothing, the following experiments, on the conduction of heat by textile fibers and the relative rate of absorption and evaporation of water, have been made to substantiate or disprove the theories regarding the influence of weave and fiber on the hygienic qualities of certain fabrics.

Stockings were selected as the material to be tested because these were available in several fibers in the same weight and weave. In the experiments showing variation in the proportion of two mixed fibers in a fabric and the influence of weave in the same fiber, bags were made of the materials used.

The method of procedure was as follows: Hot water was poured into bottles which contained 1000 cc. The stockings or bags were placed on the bottles and were held tight to the necks of the bottles with elastic bands. One uncovered bottle was used in each experiment as a check. Rubber corks, through which thermometers were run, were fitted into the bottles and the temperatures were taken at fifteen minute intervals.

In the experiment performed to compare the rate of heat conduction of fabrics made from different fibers, stockings of wool, silk, and cotton in both heavy and light weights were used. The bottles were of uniform size, and the area covered on each bottle was 100 square inches. The weight of the material actually covering the bottles was ascertained, and the number of holes per square inch of material were counted under the microscope. The experiment was performed three times with water of different temperatures. The results showed heavy wool to be the poorest conductor of heat, then light wool, heavy silk, light silk, heavy cotton, and light cotton in the order mentioned.

Heat is lost more rapidly on a cold day than on a warmer one, since on a day with a temperature of 12°C. it took only two hours and forty-five minutes for water of 78°C. to reach 41°C., and on a day of 18°C. it took three hours and forty-five minutes for water to drop from 84°C. to 41°C., or three hours and fifteen minutes from 78°C. to 41°C. It took forty minutes longer for heavy wool to reach the same temperature as cotton. This emphasizes the necessity for dressing warmer on a cold

¹ Summary of experiments reported at the Thirteenth Annual Meeting of the American Home Economics Association, Colorado Springs, June, 1920.

day in order to maintain a constant body temperature when heat is being lost rapidly. The small serrations on the surface of the wool fiber make it possible for wool in some weaves to entangle a large amount of atmospheric air, which is a non-conductor. The fibers with the smoother surfaces are better conductors of heat.

Since ventilation will hasten heat loss, an experiment was performed to compare the relative rate of heat conduction of silk and cotton in moving air. The materials used were silk and cotton stockings of the same weight and color. The experiment was performed according to directions given previously for the experiment on heat conduction. In addition, the bottles covered by the silk and the cotton stockings, and the check bottle were placed in a row two feet in front of an electric fan. The experiment was performed three times. The results showed that heat was lost more rapidly by silk than by cotton when the surrounding air was in motion. The conclusion may be reached that cotton would afford more protection on a windy day than silk, for the silk fiber has a smoother surface than the cotton fiber, and moving air can fan through the meshes of silk more easily than through cotton.

To compare the effect on conduction of heat by the variation in proportion of two mixed fibers in a fabric, the materials tested were flannel composed of all wool, two-thirds wool and one-third cotton, and one-third wool and two-thirds cotton. The experiment was performed three times with water at different temperatures. The results showed all wool flannel to be the poorest conductor of heat, then flannel of two-thirds wool and one-third cotton, then flannel of one-third wool and two-thirds cotton. The value of flannel in the retention of heat varies with the amount of wool present. The flannel containing the largest per cent of wool is the warmest.

To show the influence of variation of weave with the same fiber, the plain weave, knit weave, and basket weave in cotton were selected, as they are the weaves used in underwear. The experiment was performed three times with water at different temperatures. The plain weave is the poorest conductor of heat, then the knit weave, then the basket weave. This shows that material which is woven in such a way as to have open air spaces is a good conductor of heat. If the air spaces are not open, but are more or less covered with interlacing threads, atmospheric air is entangled in these spaces and this makes the garment a poor conductor of heat. If the material on the bottles had been cov-

ered with a thin layer of closely woven cloth, the results would have been reversed, as the larger spaces would have held more air and therefore the material would have been a poor conductor of heat in proportion to the air held.

In order to determine the relative rate of absorption of water by different fibers, and the relative rate of evaporation of water from these fibers, experiments were made with wool, silk, linen, and cotton, using materials of as nearly the same weight and weave as possible. These were cut into wicks 3 inches long and 1 inch wide.

Water was put into beakers so that the distance from the water to the tops of bulbs of thermometers suspended above was $1\frac{1}{2}$ inches. The wicks were sewed on the bulbs of the thermometers and the ends immersed in water. The time interval required for the water to reach the bulb was noted for each fiber; this showed the relative rate of absorption. From the time the wick was wet, the thermometer readings were taken at ten minute intervals for each of the fibers, so that the relative rate of evaporation of water could be ascertained by the lowering of the temperature. The experiment was performed three times. Water evaporated most quickly from linen, then silk, cotton, and wool.

The linen absorbed water most rapidly and the water evaporated from it most rapidly, lowering the temperature. This shows that linen is the coolest material in dry climates. Wool absorbed water very slowly and water evaporated from it slowly. This shows that wool is a warm material to wear. Silk and cotton, which absorb water at a moderate rate, are suitable materials for ordinary conditions. Of these two fibers, cotton is more practical as it is not so expensive as silk and is more easily cleaned.

The rate of absorption for the part of the wick sewed tight on the bulb ($\frac{1}{2}$ inch) was much slower than that from the water to the bottom of the bulb (1 inch). This would indicate that perspiration is not so readily absorbed by tight clothing as by loose.

Another experiment was made to show the relative rate of evaporation of water from textile fibers and the consequent lowering of temperature. Wool, silk, cotton, and linen of as nearly the same weight and weave as possible were made into bags.

The method of procedure was the same as in the experiment on conduction of heat. Then the experiment was repeated, using the same bags, and water of the same initial temperature. Burettes containing

water of the same temperature as that in the bottles were suspended above the bottles, and the stopcocks were so regulated that water dropped at intervals of two seconds on the bottles under the coverings.

The results showed that the water in the bottles was cooled faster when water was dropped from burettes on the bottles than when it was not. They also showed, by the lowering of the temperature, that water evaporates most quickly from linen, then silk, cotton, and wool. The lowering of temperature was noticeable soonest in linen and last in wool, which shows that linen is the coolest material to wear and wool the warmest. Conduction is less in wet goods than dry. Since the water in the bottles cooled in ten minutes less time when water was dropping from burettes, it seems probable that heat was lost by conduction as well as by evaporation. The coverings presented very nearly the same area of surface exposed to unsaturated air, and for this reason evaporation would be approximately uniform no matter what the material.

EXPERIMENTS IN THE MAKING OF DOUGHNUTS OF LOW FAT ABSORPTION¹

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PART I

How much fat should a pound of dough reasonably be expected to take up in frying? Numerous experiments performed in the Experimental Kitchen of the Office of Home Economics in which batters and doughs were fried in deep fat under varying conditions, show that the fat absorption varies greatly in amount upon various occasions. Twenty pounds of dough may be so made up and fried as to take up ten pounds of fat in frying, or so made up and fried as to take up only one pound of fat. The fat absorption of the average homemade doughnut of good quality lies between these two extremes.

¹ Published by permission of the Secretary of Agriculture.

This is the second report from the Experimental Kitchen laboratory on the subject of fat absorption during frying in deep fat. See *Journal of Home Economics*, March, 1920, for first report.

Can a good quality of homemade doughnut be made which will be low in fat? This is a question of interest to many who profess a fondness for doughnuts, crullers, fried cakes, or fritters, yet who often find the excess of fat in such foods difficult to digest—if not to pay for!

This article reports experimental work in the frying of doughnut mixtures under varying conditions with especial reference to securing a product of low fat absorption, which shall yet be tender and have good keeping qualities.

Since it was shown by the work of Miss McKee,² and fully confirmed by our experiments reported in the JOURNAL for March, 1920, that the fat absorption is increased by increase of fat and sugar in the dough, the attempt was made to develop a doughnut containing a low amount of fat and a fairly low amount of sugar that would yet retain the desirable qualities of the homemade doughnut.

"Standard" recipe

This mixture was adopted as a control for comparison with other experimental doughs; but the term "standard" was not intended to denote superior quality of product, since the product resulting from other formulae was often preferred to this one.

<i>Ingredients</i>	<i>By measure</i>	<i>By weight grams</i>
Sugar.....	1 cup	200
Butter.....	2 teaspoons	10
Eggs.....	2	96
Milk.....	1 cup	244
Flour.....	5½ cups	580
Baking powder.....	4 tablespoons	36
Salt.....	1 teaspoon	5
Cinnamon.....	1 teaspoon	2
Nutmeg.....	½ teaspoon	1½

An amount of baking powder equal to one-sixteenth of the weight of the flour was selected as the measure for the standard recipe; this corresponds to about 2 teaspoons (level) of baking powder for each cup of flour. When a smaller quantity of baking powder (cream of tartar type) was used, the doughnuts showed a slightly lower fat absorption per unit weight of dough, but the volume and texture were not so good. No further experiments with different brands or amounts of baking powder were undertaken.

The average absorption of doughnuts made by this formula, fried (as soon as possible after mixing) for 3 minutes at a temperature of 185°C., turning each doughnut at least once during frying to insure equal brown-

² Fat Absorption in Frying Doughnuts. Mary C. McKee, *Jour. Home Econ.*, Jan. 1918.

ing of both sides, was 24 per cent. This figure is obtained by dividing the amount of fat absorbed during frying by the weight of the dough before frying. The fat content of a single "standard" doughnut of 35 grams weight after frying was about 8 grams, or about two-thirds of a tablespoon. These figures, however, as well as the time of frying, can easily be varied by changes in manipulations, or by changing the size and shape of the doughnut.

Manipulation. Standardization of size and shape. It was found that in calculating fat absorption on a small number of doughnuts, such as a single frying of four or five, any marked deviation in size and weight of the doughnuts caused a variation in the absorption of fat. It was hardly fair, for instance, to compare on the same basis a lot of four doughnuts weighing 153 grams with a lot weighing 109 grams, since the amount of surface exposed to the fat was greater in proportion to the total weight in the doughnut of low weight. One method used to overcome this difficulty consisted in a rigid standardization of size, shape, and weight. The dough was patted or rolled to $\frac{1}{4}$ inch thickness on a molding board in a frame designed for this purpose, and then cut with a doughnut cutter 3 inches in diameter with a center hole of $1\frac{1}{4}$ inches diameter. Great pains were taken that the doughnuts should not stick to the board, or stretch out of shape during handling. The doughnuts were fried in lots of four; each doughnut was required to weigh not more than 34 grams, nor less than 30 grams before frying, and was rolled to approximately the same thickness and shape.

This rigid standardization of shape, size, and weight of the doughnuts, while intended to give a fair basis for comparison, nevertheless, as might be expected, did not produce a doughnut of uniformly good quality. Furthermore, it was found that the first doughnuts fried out of a given lot of dough, viz., those in which the dough had stood for the shortest possible time and had received the least possible manipulation, attained a consistently higher absorption of fat, along with a greater tenderness of texture, than was the case with those from subsequent rollings of the same dough.

When working for strictly comparable results, it was often a practice to allow all doughs to stand for two hours after mixing and before rolling in order to do away with deviations due to the "ripening" of the dough in case of the last batch, which must stand a few minutes while the first batch is being rolled and fried. If all the dough stands for a considerable period, the influence of these few extra minutes of waiting is negligible.

The doughnuts, which upon weighing were shown to be either too heavy or too light to conform with the standard, had to be returned to the batch of dough and again rolled and cut. Sometimes this necessitated three or four rollings. The dough which received this additional handling showed always a lower fat absorption than the dough more lightly handled. This accounts in part for the deviations in fat absorption, which are so often noticeable in different lots of the same batch of dough fried under otherwise similar conditions.

In order to do away with the deviations due to overhandling, strict comparisons as to the effect of varying ingredients could be made only between those doughnuts which had not been rehandled in any way.

A second method used when attempting to secure fairly comparable results; or, the "home method." In order to obviate so far as possible these two causes of variation (overhandling and ripening of the dough) the whole batch of dough, made from about 10 ounces of flour (half of the formula given above), was weighed and rolled quickly to uniform thickness; the doughnuts were cut and fried without further effort to secure a standardization of the size and weight of each doughnut. The amount of fat absorbed was then estimated on the whole quantity of dough fried. Often 16 or more doughnuts (4 fryings or a greater number) were estimated as one lot. The per cent of fat absorbed did not differ greatly from the results obtained by averaging the absorption of the first frying with the later fryings of a given lot of dough. The weight of six doughnuts, selected at random from a lot which had been cut and fried as above, varied from 41 to 51 grams each (weight after frying); but such discrepancies in weight of the individual doughnuts are presumably "evened up" when a large number are estimated as one lot. Furthermore, this method of work has the advantage of simulating closely the methods used in the average household, where, as a rule, extra manipulation of the dough is carefully avoided.

A record was kept of the length of time and the conditions under which the dough stood before frying, the time ranging from the very brief interval which would necessarily elapse between making and frying, when working rapidly up to the extremely long interval of 24 hours. As a rule the doughnuts were strictly standardized with respect to size, weight, and the number fried at a time, four constituting one lot. In very few cases were fewer than four doughnuts fried at a time; and in a number of cases (experiments 18 to 20 E and 22 to 26) the "home method," described in the preceding paragraph, was used. In some of the experi-

ments the dough stood at room temperature, but in other tests, as noted, it was kept in a refrigerator. In only three of the experiments reported in the table (experiments 15, 16, and 17) were the doughnuts kept submerged.

Duplicate tests do not invariably show close correspondence in figures for fat absorption, in case of doughnuts, because of the difficulty of securing comparable shape, size, and weight, without overmanipulation, as mentioned above. It is, therefore, necessary to repeat experiments a number of times and to vary them in many different ways, before definite conclusions can be drawn. In the course of over two hundred experiments in which many different recipes were tested, certain standard proportions were selected (as explained above) as a basis for comparative tests. Only those tests in which all data were strictly comparable (consequently only a few series from the total number of series) have been selected for the tables given below. Lack of space prevents the presentation of so large an amount of experimental data as would be included if we gave the results of our tests with all the recipes we have tried.

TABLE 1

Summary of certain data obtained when frying doughnuts, selected as being strictly comparable

RECIPE AND PROCEDURE	TIME DOUGH STOOD ^a	TEMPERATURE OF FAT IN FRYING	TIME FRIED	FAT IN DOUGH (CALCULATED)	FAT ABSORBED (OBSERVED)	WATER LOST (CALCULATED)	FAT IN FRIED DOUGHNUTS (CALCULATED)
	hours	deg. C.	minutes	per cent	per cent	per cent	per cent
Standard proportions: (see p. 256) ^b							
Experiment 1 ^c	At once	185	3	3.0	23.0	13.0	23.0
Experiment 2 (average of 5).....	1½	185	3	3.0	21.6	12.4	22.0
Experiment 3.....	2	170	3	3.0	22.0	12.0	22.0
Experiment 4.....	2	205	2	3.0	15.0	10.0	17.0
Experiment 5.....	Overnight	185	3	3.0	10.0	14.0	13.0
Standard proportions soft wheat flour:							
Experiment 6 (average of 2).....	At once	185	3	3.0	24.5	13.0	24.0
Experiment 7 (average of 5).....	1½	185	3	3.0	21.6	12.4	22.0
Experiment 8 (average of 2).....	2	185	3	3.0	18.0	11.0	19.0
Experiment 9.....	2½	210	2	3.0	14.0	12.0	16.0
Experiment 10.....	3½	185	3	3.0	22.0	10.0	22.0
Experiment 11.....	Overnight	185	3	3.0	10.0	13.0	13.0
Standard plus 224 grams hot riced potato:							
Experiment 12.....	½	185	3	2.5	17.0	15.0	19.0
Experiment 13.....	2½	185	3	2.5	20.0	20.0	22.0
Standard plus 224 grams potato, 100 grams sugar:							
Experiment 14 (average of 2).....	2	185	3	2.4	23.5	20.0	24.0

TABLE 1—Continued

RECIPE AND PROCEDURE	TIME DOUGH STOOD ^a	TEMPERATURE OF FAT IN FRYING	TIME FRIED	FAT IN DOUGH (CALCULATED)	FAT ABSORBED (OBSERVED)	WATER LOST (CALCULATED)	FAT IN FRIED DOUGHNUTS (CALCULATED)
	hours	deg. C.	minutes	per cent	per cent	per cent	per cent
Standard plus 224 grams potato; fried submerged:							
Experiment 15 ^d	At once	205	1	2.5	10.0	10.0	12.5
Standard plus 224 grams potato; fried submerged:							
Experiment 16.....	At once	185	1½	2.5	12.0	13.0	15.0
Standard; fried submerged:							
Experiment 17.....		185	1½	3.0	13.0	10.0	15.0
Standard; fried by "home meth- od" (see p. 258):							
Experiment 18.....	1	185	3	3.0	22.0	14.0	23.0
Experiment 19.....	3	185	3	3.0	17.0	20.0	20.0
Experiment 20 ^e	3	185	3	3.0	10.0	18.0	14.0
Standard proportions soft wheat flour:							
Experiment 21 ^e	3½	185	3	3.0	16.0	13.0	18.0
Standard; yeast instead of bak- ing powder; kneaded slightly; fried by "home method:"							
Experiment 22 ^e	3	185	3	3.0	7.0	9.6	10.0
Standard (baking powder) plus 224 grams potato; kneaded slightly; fried by "home method:"							
Experiment 23 ^e	At once	185	3	2.5	13.0	13.0	15.5
Standard minus 100 grams sugar; fried by "home method:"							
Experiment 24.....	At once	185	3	3.6	18.0	18.0	21.0
Experiment 25.....	½	185	3	3.6	10.0	12.0	13.0
Experiment 26.....	½	210	2	3.6	11.0	9.0	14.0

^a In experiments 5, 7, 10, 11 and 14 the dough was kept in a refrigerator before frying; in all other experiments, at room temperature.

^b Unless otherwise stated, hard wheat flour was used in all the experiments reported.

^c Four doughnuts weighing 30 to 34 grams as dough were fried at a time in experiments 1 to 12, 14 to 15, and 18; three doughnuts in experiment 13; and nine to sixteen in experiments 17 to 20 and 22 to 24 inclusive. Four doughnuts were fried in experiment 16, but they were not of standard weight.

^d In experiments 15, 16 and 17 the doughnuts were kept submerged during frying; in all other cases they were allowed to float after coming to the top.

^e In experiment 21 part of the dough was overmanipulated; in experiments 20, 22 and 23 it was kneaded slightly. In all other cases it was manipulated uniformly according to standardized procedure.

FOR THE HOMEMAKER

BOTULISM AND HOME CANNING¹

FOREWORD

MINNA DENTON

Botulism ("sausage poisoning") was first studied in Germany, and was supposed to be due solely to the eating of meat which had spoiled as a result of the growth of the *Bacillus botulinus*. A few years ago, American bacteriologists, who were studying the subject of food poisoning in our western states, found that *Bacillus botulinus* develops in canned vegetables, and even in canned fruits, as well as in sausage or in canned or brined meat. It has been shown also that there are two different types of *Bacillus botulinus*, which are known as Type A and Type B, respectively; and that Type A is highly resistant to heat, since its free spores require to be boiled for five hours or to be heated for 40 minutes at 105°C. (220°F. or 5 pounds of steam pressure), or to be heated for at least 6 minutes at 120°C. (about 250°F. or 15 pounds pressure), before they are killed.

It appears that the *Bacillus botulinus* is rather widely distributed throughout this country, for it has already been isolated from foods which were grown for the use of animals or of man in at least a dozen of our states, about half of which are east and half west of the Mississippi River. Certain areas in the West, however, have been much oftener afflicted than other states. It has been found on a number of kinds of agricultural products, and the claim has been made that it is a soil organism. However, there seems to be little danger of botulism except from preserved foods which are stored for some days, or weeks, under such conditions that the air is excluded from all or from a part of the food mass. This condition affords the *Bacillus botulinus* spores their opportunity to grow, for they are anaerobic and do not grow in the presence of free oxygen. Botulism has resulted from the ingestion of contaminated ham, pickled or brined and eaten without cooking; olives, brined and underprocessed; sausage, eaten raw or

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undercooked; cheese (cottage); tamales, presumably undercooked; some other spoiled meat products, notably underprocessed canned meats or animal tissue products, such as bottled clam broth; canned fruits in some instances; and, in a number of cases, canned vegetables, including both home-canned and commercially-canned products. String beans, asparagus, and olives have been oftener implicated than other vegetables; although peas, corn, beets, spinach, white ("navy") beans, apricots, and one or two other fruits have also been accused as causes of botulism, in a number of instances, with very good evidence to support the accusation.

Dickson reports that up to June 30, 1920, he had counted 54 outbreaks of botulism in this country, affecting 228 persons altogether, over two-thirds of whom have died. Besides that, he has records of 22 outbreaks of botulism which affected fowls ("limber neck" of chickens); and several cases of forage poisoning of horses and stock have been considered identical with botulism.

It must be remembered, however, that, although these figures are doubtless far short of the actual occurrence of botulism, which has not been widely recognized by physicians in this country until very recently, yet they represent an absolutely insignificant fraction of the consumers of canned goods. By way of illustration, it may be remarked that, if death or injury from automobile accident were so rare as to be headlined throughout the press of the country each time such events occur, perhaps such headlines would arouse panic and cause the sale of automobiles to stop altogether for some months, thus paralyzing the industry! For it is the rare and unfamiliar forms of sickness and death of which we are in terror, rather than their usual well-known forms which we are so much more likely to encounter.

Fortunately, the poison or toxin of *Bacillus botulinus* is easily destroyed by boiling, even though the spores are not. This does not warrant us in boiling spoiled food and then consuming it, for we are not certain that some of these heated spores, which have not been killed, might not grow in the body and ultimately produce poisoning, particularly if they are found in very large numbers. The history of botulism investigations, however, encourages us to believe that this could hardly be the case in food containing so few bacteria that it does not appear spoiled to the sense-perceptions of the average person.

Below are quoted the opinions of bacteriologists responsible for recent investigations of botulism that show that there are three precautions which should be taken by the home canner who wishes to be reasonably sure of avoiding the possibility of botulism, even though she cannot at the present time be absolutely certain that the heating process she uses will "strike in" to the center of the can or jar soon enough to kill all highly resistant spores, in case such should be present.

1. Use none but clean, sound, perfect fruits and vegetables, free from blemishes, when canning.

2. Give the contents of the can or jar a thorough inspection at the time of opening. Use the senses of sight and smell *first*, the sense of taste *last*.

3. Heat thoroughly all canned vegetables which appear sound and wholesome, so that the entire mass comes to the boiling point, *before tasting*. Even if you are using the canned string beans or asparagus for salad, do not omit the heating process. Boil for five minutes.

BOTULISM²

ERNEST C. DICKSON

"The temperature of boiling water is not sufficiently high to ensure destruction of the spores. . . . It is obvious that many of the methods employed in preserving food, particularly the home-canning methods, are inefficient if spores of the more resistant strains of *Bacillus botulinus* happen to be contained within the can. . . .

"There has been some difference of opinion as to whether food which contains the botulinus toxin is always so spoiled as to readily attract the attention of the one who opens the container. It is probable that there is always more or less marked evidence of spoilage in food contaminated with *B. botulinus* toxin, but it is wrong to believe that it is always very evident. In the laboratory I have seen a few cans of vegetables which had been experimentally inoculated in which there was no macroscopic evidence of spoilage and in which but little odor could be detected, although they contained a virulent toxin, but in the majority of cases the signs of spoilage were very marked and the odor was offensive. However, there are many instances on record in which the housewife who opened the jars of vegetables could not determine that the food was spoiled, even after she had smelled and

² *Amer. Jour. Pub. Health*, Nov. 1920, p. 865.

undercooked; cheese (cottage); tamales, presumably undercooked; some other spoiled meat products, notably underprocessed canned meats or animal tissue products, such as bottled clam broth; canned fruits in some instances; and, in a number of cases, canned vegetables, including both home-canned and commercially-canned products. String beans, asparagus, and olives have been oftener implicated than other vegetables; although peas, corn, beets, spinach, white ("navy") beans, apricots, and one or two other fruits have also been accused as causes of botulism, in a number of instances, with very good evidence to support the accusation.

Dickson reports that up to June 30, 1920, he had counted 54 breaks of botulism in this country, affecting 228 persons altogether, over two-thirds of whom have died. Besides that, he has recorded 22 outbreaks of botulism which affected fowls ("limber neck" chickens); and several cases of forage poisoning of horses and stock, which have been considered identical with botulism.

It must be remembered, however, that, although these doubtless far short of the actual occurrence of botulism, which has not been widely recognized by physicians in this country until recently, yet they represent an absolutely insignificant fraction of the total of canned goods. By way of illustration, it may be said that if death or injury from automobile accident were so rare as to be lined throughout the press of the country each time a car was wrecked, perhaps such headlines would arouse panic and cause people to stop automobiles altogether for some months, thus paralyzing the country. For it is the rare and unfamiliar forms of sickness which cause us to be in terror, rather than their usual well-known forms. We are so much more likely to encounter the rare than the common.

Fortunately, the poison or toxin of botulism is easily destroyed by boiling, even though the spores are not killed. It is a warrant to us in boiling spoiled food and that it is not certain that some of these heated foods, which are killed, might not grow in the body and cause botulism. Particularly if they are found in vegetable products. In botulism investigations, however, it could hardly be the case in which the food does not appear spoiled.

This organism is known as *Clostridium botulinum*, belonging to the group of anaerobic bacteria. It is widely distributed in nature, especially in soil, and is the cause of the disease known as botulism. It is limited in its occurrence to environments where it is produced by the growth of the organism. The toxin can be filtered out of the culture. This toxin is readily destroyed by heat. It is brought to the boiling point by the boiling of food, and the symptoms of botulism. It produces resistant spores which are not destroyed by heat when fed in mass caused

The purpose of this organism to canning is to keep food in a can of food is free from air; it is an anaerobic organism. The toxin destroys all of the miscellaneous bacteria present, leaving only the spores of the organism capable of withstanding the heat. It is an exceptionally good incubator for the growth of the organism, and the system of canning thus far devised is based on the sterility of every can. The amount of heat applied in some cases. Imperfections in the canning process, and in the variable human factor in canning account for the loss of a small amount of food. No matter how carefully the particular can is prepared, this applies both to home and to commercial canning. The purpose of canning is to keep food in a can. It must be frankly recognized that a certain percentage of food will spoil, no matter what the method used. It is a guarantee that every can will keep and since you cannot guarantee you which spoiled can is dangerous, the canner must recognize a spoiled can as a legitimate loss which must not be returned to the food.

The time of opening canned food. Now, how are we to recognize a spoiled can? Spoilage in the can is recognized in various

tasted it, although her subsequent illness and death were evidence that the toxin had been present in considerable amounts. In some instances the offensive odor was not noted until the food became heated during the process of cooking, and there are several instances in which the persons who ate the food as salad with salad dressing did not notice anything unusual in its taste or odor. It cannot, therefore, be stated that only food which is obviously unfit for consumption is liable to contain the botulinus toxin, but it should be emphasized that any preserved food which shows the slightest signs of spoilage should be discarded without being tasted, and should not be left where human beings or domestic animals or fowl may have access to it. The toxin of *B. botulinus* is destroyed by heat, and if canned food is thoroughly heated through after it is removed from the container, all danger of botulinus poisoning will be removed. It may be added that there are few, if any 'ready to serve' canned foods which are in any way damaged by being boiled and, if necessary, cooled before they are eaten."

BOTULISM AND ITS RELATION TO CANNED FOOD³

CHARLES THOM

Mycologist, Bureau of Chemistry, United States Department of Agriculture

The Microbiological Laboratory of the Bureau of Chemistry has been investigating the subject of food poisoning for several years. Food poisoning appears in general in two forms, the fatal form which has been given a great deal of public attention on account of outbreaks involving the deaths of groups of persons and has become well known under the term "botulinus poisoning" or more accurately "botulism;" and second, the enteric type of poisoning in which the number of persons affected is very much greater but the death rate is very much less. This type of poisoning involves a very large percentage of the population at one time or another, the total of deaths perhaps exceeding that of botulism, but the percentage of fatal cases is so small as to excite less comment than the terribly fatal form which has been so widely recognized in recent years.

Confining, therefore, our discussion to botulism and its relation to canned goods, the general status of the investigation may be discussed under three heads, the responsible organism, the method of canning, and the precautions to be observed in eliminating the trouble.

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The responsible organism. The responsible organism is known as *Bacillus botulinus*, an anaerobic bacterium belonging to the group producing putrefactive odors. This organism is widely distributed in nature and accompanies many other organisms as contaminations in various food stuffs. It has apparently been the cause of the death of a great many domestic animals which have died of the disease known as forage poisoning. It is not, therefore, limited in its occurrence to canned goods. The poison itself (toxin) is produced by the growth of the organism in the foodstuff. The organism can be filtered out of the foodstuff, and leave the toxin at its full virulence. This toxin is readily destroyed by heat so that if the entire mass is brought to the boiling point it will no longer produce the ordinary symptoms of botulism. Some strains of the organism, however, produce resistant spores which are not killed by ordinary boiling and which when fed in mass caused the death of experimental animals.

The method of canning. The relation of this organism to canning lies in the fact that a properly prepared can of food is free from air; therefore becomes a favorable medium for an anaerobic organism. The cooking to which the can is subjected destroys all of the miscellaneous organisms which may be initially present, leaving only the spores of species (such as this one) which are capable of withstanding the heat. The resulting can is, therefore, an exceptionally good incubator for *Bacillus botulinus* and its toxin. No system of canning thus far devised has been perfect enough to insure sterility of every can. The amount of heat used may not be sufficient in some cases. Imperfections in the apparatus, jars, cans, and gaskets, and in the variable human factor involved in the operations of canning account for the loss of a small percentage of the product, no matter how carefully the particular canning rules chosen are followed. This applies both to home and to commercially canned goods. The purpose of canning is to keep food from spoiling; and it must be frankly recognized that a certain percentage of goods is likely to spoil, no matter what the method used. Since it is impossible to guarantee that every can will keep and since it is impossible to tell you which spoiled can is dangerous, the canner must recognize the spoiled can as a legitimate loss which must not be salvaged for human food.

Precautions at the time of opening canned food. Now, how are we to detect this dangerous can? Spoilage in the can is recognized in various

ways. In tin the most prominent evidence is a swelled can. A normal can shows both ends depressed, due to a partial vacuum. Most forms of decomposition involve the production of gas which relieves the vacuum first and then produces internal pressure, forcing the ends of the can outward ("swell"); or causing a leak at some of the joints, so that the jar or can when examined is seen to be under pressure or to have become a "leaker" as shown by the stain on the label or discoloration at some of the seams. This may frequently be detected by the occurrence of bad odor at the discolored or suspected places in the unopened container. The odor of a spoiled can when opened is usually characteristically offensive in some form. The odors to be recognized vary from merely sour to actually putrid types. The contents of the can may or may not show disintegration, that is, evidence of breakdown of texture. Some of the most dangerous and offensive forms of spoilage show comparatively little change in the texture of the products within the can. Other forms show very extensive disintegration. In cases of spoilage the liquor is usually cloudy or turbid.

The person who opens a can of food should, therefore, give heed to the appearance of the unopened can, and to the odor and consistency of its contents before even tasting the product. If the can is obviously sound and the odor and appearance of the product characteristic for the particular foodstuff, it has been found safe to taste. If the taste is true to the product canned, it is safe to serve for human food.

It must be admitted that there is a vague possibility that dangerous food will pass such inspection as this, but such inspection would have eliminated the food actually responsible in every case of death from botulism in which the Bureau of Chemistry has actually obtained the product responsible.

Further, in many cases in which we have not actually had the material responsible for the death of the individuals, the records of the cases show that the spoiled nature of the food consumed was known at least to some of those who handled the product. This has been conspicuously true in some of the most recent cases involving the death of a considerable number of persons. We therefore feel justified in advising (1) *that spoiled food be discarded, not salvaged and eaten*; and (2) that the evidences of spoilage in so far as they involve danger of botulism are easily enough detectable to justify the statement that the person who opens the can is responsible for the destruction of its contents.

TEA¹

SUSANNAH USHER

(Concluded²)

TEAS OF CHINA, FORMOSA, AND JAPAN

The teas of China, Formosa, and Japan have a number of points in common which makes them fall naturally into the same group.

The tea is raised for the most part by natives on small plots of ground. The tea plants are of common Chinese origin and after a quiescent winter period they send forth their new leaves. These are picked in the spring in April or the first of May, according to the season. A second picking takes place in summer, and a third picking is sometimes made in the autumn.

The teas from these countries always undergo a preliminary manufacture which is carried out by the natives with primitive utensils and by time-honored slow hand processes. This preliminary treatment is sufficient for home consumption, but if the teas are to be exported they are further treated or re-fired in "hongs" or "firing go-downs" so that they can stand long voyages without deterioration.

These native hand methods of manufacture and the final re-firing in hongs are supposed to be the main elements in producing teas which have the following characteristics: good keeping qualities; fine delicate flavor and aroma; mellowness instead of pungency.

Japan teas are practically all of the green variety. Only small amounts are manufactured in imitation of blacks and oolongs.

The Japan teas are peculiar to themselves. The good grades are needle-shaped and well curled, with a clear, bright liquor of greenish-yellow color. They are delicate and mellow in flavor. The infused leaf is thick and soft.

Formosa Oolong. Soil, climate, growth, and peculiarities of manufacture all contribute toward making Formosa oolong tea unique in flavor and aroma.

Although Formosa has been a part of Japan since the Chinese-Japanese War, its teas are in a class by themselves.

In China and Japan the early pickings make the best teas but in Formosa on account of its climate the summer pickings, if the season is favorable, are more highly prized for their fine flavor and body.

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² The first installments appeared in March and April.

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These native hand methods of manufacture and the final re-firing in hongs are supposed to be the main elements in producing teas which have the following characteristics: good keeping qualities; fine delicate flavor and aroma; mellowness instead of pungency.

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In China and Japan the early pickings make the best teas but in Formosa on account of its climate the summer pickings, if the season is favorable, are more highly prized for their fine flavor and body.

¹ Copyright, 1921, by the American Home Economics Association.

² The first installments appeared in March and April.

undercooked; cheese (cottage); tamales, presumably undercooked; some other spoiled meat products, notably underprocessed canned meats or animal tissue products, such as bottled clam broth; canned fruits in some instances; and, in a number of cases, canned vegetables, including both home-canned and commercially-canned products. String beans, asparagus, and olives have been oftener implicated than other vegetables; although peas, corn, beets, spinach, white ("navy") beans, apricots, and one or two other fruits have also been accused as causes of botulism, in a number of instances, with very good evidence to support the accusation.

Dickson reports that up to June 30, 1920, he had counted 54 outbreaks of botulism in this country, affecting 228 persons altogether, over two-thirds of whom have died. Besides that, he has records of 22 outbreaks of botulism which affected fowls ("limber neck" of chickens); and several cases of forage poisoning of horses and stock have been considered identical with botulism.

It must be remembered, however, that, although these figures are doubtless far short of the actual occurrence of botulism, which has not been widely recognized by physicians in this country until very recently, yet they represent an absolutely insignificant fraction of the consumers of canned goods. By way of illustration, it may be remarked that, if death or injury from automobile accident were so rare as to be head-lined throughout the press of the country each time such events occur, perhaps such headlines would arouse panic and cause the sale of automobiles to stop altogether for some months, thus paralyzing the industry! For it is the rare and unfamiliar forms of sickness and death of which we are in terror, rather than their usual well-known forms which we are so much more likely to encounter.

Fortunately, the poison or toxin of *Bacillus botulinus* is easily destroyed by boiling, even though the spores are not. This does not warrant us in boiling spoiled food and then consuming it, for we are not certain that some of these heated spores, which have not been killed, might not grow in the body and ultimately produce poisoning, particularly if they are found in very large numbers. The history of botulism investigations, however, encourages us to believe that this could hardly be the case in food containing so few bacteria that it does not appear spoiled to the sense-perceptions of the average person.

Below are quoted the opinions of bacteriologists responsible for recent investigations of botulism that show that there are three precautions which should be taken by the home canner who wishes to be reasonably sure of avoiding the possibility of botulism, even though she cannot at the present time be absolutely certain that the heating process she uses will "strike in" to the center of the can or jar soon enough to kill all highly resistant spores, in case such should be present.

1. Use none but clean, sound, perfect fruits and vegetables, free from blemishes, when canning.

2. Give the contents of the can or jar a thorough inspection at the time of opening. Use the senses of sight and smell *first*, the sense of taste *last*.

3. Heat thoroughly all canned vegetables which appear sound and wholesome, so that the entire mass comes to the boiling point, *before tasting*. Even if you are using the canned string beans or asparagus for salad, do not omit the heating process. Boil for five minutes.

BOTULISM²

ERNEST C. DICKSON

"The temperature of boiling water is not sufficiently high to ensure destruction of the spores. . . . It is obvious that many of the methods employed in preserving food, particularly the home-canning methods, are inefficient if spores of the more resistant strains of *Bacillus botulinus* happen to be contained within the can. . . .

"There has been some difference of opinion as to whether food which contains the botulinus toxin is always so spoiled as to readily attract the attention of the one who opens the container. It is probable that there is always more or less marked evidence of spoilage in food contaminated with *B. botulinus* toxin, but it is wrong to believe that it is always very evident. In the laboratory I have seen a few cans of vegetables which had been experimentally inoculated in which there was no macroscopic evidence of spoilage and in which but little odor could be detected, although they contained a virulent toxin, but in the majority of cases the signs of spoilage were very marked and the odor was offensive. However, there are many instances on record in which the housewife who opened the jars of vegetables could not determine that the food was spoiled, even after she had smelled and

² *Amer. Jour. Pub. Health*, Nov. 1920, p. 865.

tasted it, although her subsequent illness and death were evidence that the toxin had been present in considerable amounts. In some instances the offensive odor was not noted until the food became heated during the process of cooking, and there are several instances in which the persons who ate the food as salad with salad dressing did not notice anything unusual in its taste or odor. It cannot, therefore, be stated that only food which is obviously unfit for consumption is liable to contain the botulinus toxin, but it should be emphasized that any preserved food which shows the slightest signs of spoilage should be discarded without being tasted, and should not be left where human beings or domestic animals or fowl may have access to it. The toxin of *B. botulinus* is destroyed by heat, and if canned food is thoroughly heated through after it is removed from the container, all danger of botulinus poisoning will be removed. It may be added that there are few, if any 'ready to serve' canned foods which are in any way damaged by being boiled and, if necessary, cooled before they are eaten."

BOTULISM AND ITS RELATION TO CANNED FOOD³

CHARLES THOM

Mycologist, Bureau of Chemistry, United States Department of Agriculture

The Microbiological Laboratory of the Bureau of Chemistry has been investigating the subject of food poisoning for several years. Food poisoning appears in general in two forms, the fatal form which has been given a great deal of public attention on account of outbreaks involving the deaths of groups of persons and has become well known under the term "botulinus poisoning" or more accurately "botulism;" and second, the enteric type of poisoning in which the number of persons affected is very much greater but the death rate is very much less. This type of poisoning involves a very large percentage of the population at one time or another, the total of deaths perhaps exceeding that of botulism, but the percentage of fatal cases is so small as to excite less comment than the terribly fatal form which has been so widely recognized in recent years.

Confining, therefore, our discussion to botulism and its relation to canned goods, the general status of the investigation may be discussed under three heads, the responsible organism, the method of canning, and the precautions to be observed in eliminating the trouble.

³ Printed by permission of the Secretary of Agriculture.

The responsible organism. The responsible organism is known as *Bacillus botulinus*, an anaerobic bacterium belonging to the group producing putrefactive odors. This organism is widely distributed in nature and accompanies many other organisms as contaminations in various food stuffs. It has apparently been the cause of the death of a great many domestic animals which have died of the disease known as forage poisoning. It is not, therefore, limited in its occurrence to canned goods. The poison itself (toxin) is produced by the growth of the organism in the foodstuff. The organism can be filtered out of the foodstuff, and leave the toxin at its full virulence. This toxin is readily destroyed by heat so that if the entire mass is brought to the boiling point it will no longer produce the ordinary symptoms of botulism. Some strains of the organism, however, produce resistant spores which are not killed by ordinary boiling and which when fed in mass caused the death of experimental animals.

The method of canning. The relation of this organism to canning lies in the fact that a properly prepared can of food is free from air; therefore becomes a favorable medium for an anaerobic organism. The cooking to which the can is subjected destroys all of the miscellaneous organisms which may be initially present, leaving only the spores of species (such as this one) which are capable of withstanding the heat. The resulting can is, therefore, an exceptionally good incubator for *Bacillus botulinus* and its toxin. No system of canning thus far devised has been perfect enough to insure sterility of every can. The amount of heat used may not be sufficient in some cases. Imperfections in the apparatus, jars, cans, and gaskets, and in the variable human factor involved in the operations of canning account for the loss of a small percentage of the product, no matter how carefully the particular canning rules chosen are followed. This applies both to home and to commercially canned goods. The purpose of canning is to keep food from spoiling; and it must be frankly recognized that a certain percentage of goods is likely to spoil, no matter what the method used. Since it is impossible to guarantee that every can will keep and since it is impossible to tell you which spoiled can is dangerous, the canner must recognize the spoiled can as a legitimate loss which must not be salvaged for human food.

Precautions at the time of opening canned food. Now, how are we to detect this dangerous can? Spoilage in the can is recognized in various

ways. In tin the most prominent evidence is a swelled can. A normal can shows both ends depressed, due to a partial vacuum. Most forms of decomposition involve the production of gas which relieves the vacuum first and then produces internal pressure, forcing the ends of the can outward ("swell"); or causing a leak at some of the joints, so that the jar or can when examined is seen to be under pressure or to have become a "leaker" as shown by the stain on the label or discoloration at some of the seams. This may frequently be detected by the occurrence of bad odor at the discolored or suspected places in the unopened container. The odor of a spoiled can when opened is usually characteristically offensive in some form. The odors to be recognized vary from merely sour to actually putrid types. The contents of the can may or may not show disintegration, that is, evidence of breakdown of texture. Some of the most dangerous and offensive forms of spoilage show comparatively little change in the texture of the products within the can. Other forms show very extensive disintegration. In cases of spoilage the liquor is usually cloudy or turbid.

The person who opens a can of food should, therefore, give heed to the appearance of the unopened can, and to the odor and consistency of its contents before even tasting the product. If the can is obviously sound and the odor and appearance of the product characteristic for the particular foodstuff, it has been found safe to taste. If the taste is true to the product canned, it is safe to serve for human food.

It must be admitted that there is a vague possibility that dangerous food will pass such inspection as this, but such inspection would have eliminated the food actually responsible in every case of death from botulism in which the Bureau of Chemistry has actually obtained the product responsible.

Further, in many cases in which we have not actually had the material responsible for the death of the individuals, the records of the cases show that the spoiled nature of the food consumed was known at least to some of those who handled the product. This has been conspicuously true in some of the most recent cases involving the death of a considerable number of persons. We therefore feel justified in advising (1) *that spoiled food be discarded, not salvaged and eaten*; and (2) that the evidences of spoilage in so far as they involve danger of botulism are easily enough detectable to justify the statement that the person who opens the can is responsible for the destruction of its contents.

TEA¹

SUSANNAH USHER

(Concluded²)

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The teas from these countries always undergo a preliminary manufacture which is carried out by the natives with primitive utensils and by time-honored slow hand processes. This preliminary treatment is sufficient for home consumption, but if the teas are to be exported they are further treated or re-fired in "hongs" or "firing go-downs" so that they can stand long voyages without deterioration.

These native hand methods of manufacture and the final re-firing in hongs are supposed to be the main elements in producing teas which have the following characteristics: good keeping qualities; fine delicate flavor and aroma; mellowness instead of pungency.

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The Japan teas are peculiar to themselves. The good grades are needle-shaped and well curled, with a clear, bright liquor of greenish-yellow color. They are delicate and mellow in flavor. The infused leaf is thick and soft.

Formosa Oolong. Soil, climate, growth, and peculiarities of manufacture all contribute toward making Formosa oolong tea unique in flavor and aroma.

Although Formosa has been a part of Japan since the Chinese-Japanese War, its teas are in a class by themselves.

In China and Japan the early pickings make the best teas but in Formosa on account of its climate the summer pickings, if the season is favorable, are more highly prized for their fine flavor and body.

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Formosa oolong teas have a crapy appearance, and are evenly curled. The color of the dry leaf is brownish with some olive green tinge, and often grayish tips are present. Gray tips to some extent are seasonal as they are more numerous in teas made from summer leaf. These tips make an attractive looking tea but the quality of the tea must be judged by the cup test which decides the important points of strength and flavor. The wet leaf is green with brown edges. The flavor and aroma are delightfully aromatic. The color of the liquor is golden, and a good quality is bright and clear.

Scented teas called pouchong are also made in Formosa. They are made from the poorer quality teas and are scented with the blossoms of jasmine and gardenia. These blossoms are mixed with the tea and allowed to stand until the right amount of perfume has been imparted to the tea; the flowers are then removed and the tea fired at a low temperature.

These teas are too strongly scented to use alone, but a small amount may be used in blends.

China teas are divided into green, oolong, and black. The green teas usually found on the market are gunpowder, imperial, young hyson, and hyson.

In the manufacture of green tea, oxidation is stopped at once by steaming or heating in hot pans. Consequently, these teas contain more tannin than black teas and are green in color.

Oolong teas are allowed to undergo some oxidation during the withering process before the cells are ruptured by rolling. These teas stand between green and black tea in their characteristics.

Black teas undergo some oxidation during withering and rolling, but for a period after rolling oxidation is especially encouraged, as it makes a dark-colored tea containing a minimum of tannin.

The green China teas of good quality make a liquor that is light in color. Sometimes a light straw color, with an aromatic and pungent flavor.

The China oolongs are not imported in large quantities. The Foochow oolongs are "flavory" and mellow and make an infusion that is a beautiful golden color.

The Canton oolong which comes in bundles is often found in the Chinese quarter. It is of poor quality, the higher quality being packed in cans.

The black teas of China comprise North China congous, South China congous, and souchongs. In this market the congous are usually known as English breakfast teas. The North China congous are considered the finest. They are known by the districts in which they are grown. The South China congous are not so fine as the North China. They are much used in blends. Souchongs are not imported in large quantities.

ICED TEA

Not all teas are suitable for iced tea. Some, especially high quality, heavy bodied India teas grow thick on cooling, which does not make them attractive for iced tea. If you are uncertain about your tea, try out several samples, i.e., brew them and let them cool. Reject those that grow milky. Congous, oolongs, Ceylon, and various blends are good for iced tea.

The tea may be brewed and strained hot onto cracked ice and served at once; or it may be strained and allowed to cool before serving. It will be clearer if not cooled in the refrigerator.

Various adjuncts are served with iced tea, such as sugar, cloves, lemon, orange, pineapple, strawberries, or mint. If several fruits are added it should be called a tea punch.

JUDGING TEA

After manufacture, the following points are taken into consideration in judging the quality of tea: tips; twist or make; presence or absence of stalk or black leaf.

The pungency, body, and color taken together make what is called strength. The pungency of the tea is due to the tannin bodies. Too much tannin makes the liquor unpleasantly bitter and astringent, but too little tannin makes it dull and flat. The flavor and aroma of the tea are associated with the volatile oil present in the tea.

Body or fulness is a variable quality which is thought to be associated with the total soluble matter, as tannin and mucilaginous constituents.

Color is due largely to the oxidation products of tannin, which accounts for the dark color of black teas.

As caffeine is not acted upon during manufacture and does not vary sufficiently to make a chemical examination essential when commercial value is estimated, tea tasters do not take this element into account.

THE GOVERNMENT TEA BOARD

In 1920 the following standards were established by the tea board: (1) Formosa oolong (used for Foochow and Canton oolong); (2) congou; (3) Ceylon (used for India, Java, and Sumatra); (4) gunpowder, green; (5) young hyson, green; (6) Japan, pan-fired; (7) scented orange pekoe (used for capers); (8) scented Canton. These standards are for the use of tea examiners who are stationed at each port of entry. They are not verbal standards, but are cans of tea, each can representing the lowest grade which will be passed by the United States examiner.

All tea entering the country is tested by the examiners for quality of dry and infused leaf and for artificial coloring and facing. As coloring and facing are used to give a better appearance to the leaf, their use is discouraged. Talc, gypsum, and similar substances are used for facing, and Prussian blue and indigo for coloring matter.

"During the fiscal year 1920 a total of 96,862,858 pounds of tea was examined. Of this a total of 145,246 pounds, or 0.15 per cent, was rejected; 1,592 pounds on account of impurities, and 143,654 pounds because not equal to the Government standards with respect to quality."

TEA BLENDING

Tea blending is an art that needs the attention of an expert.

Blake says, "Teas of different kinds are blended for the purpose of producing results in the drink which cannot otherwise be obtained, and should it be possible, as it frequently is, to obtain a more satisfactory tea at a lower cost, then a double object has been attained. The several flavors of the different kinds of teas which constitute a well selected or happy blend unite, and, in their union, produce a pleasing effect. One of the grades or kinds, we will say, possesses delicacy of flavor in a marked degree; another good body; a third aroma; a fourth strength; then the combined whole, if not interfered with by an injudiciously selected ingredient, will create a blend which will produce a drink that will have flavor, body, aroma, and strength in correct and happy proportions."

STORING TEAS

If tea is not tightly covered, the volatile oil which gives tea its flavor and aroma evaporates; tea also absorbs moisture and odors and soon deteriorates.

Tea should be kept in a cool dry place tightly covered from the air. A tin receptacle with a tightly fitting cover is to be recommended. A small canister should be kept for daily use so that the large canister may be kept closed as much as possible, as a large bulk of tea keeps better than tea in small packages.

In general it may be said that a high quality tea made from young leaf will keep its flavor longer than the same kind of tea made from older leaf. The tight roll which the soft young leaf takes in manufacture is one reason for its good keeping qualities.

The teas of China, Japan, and Formosa keep fresh somewhat longer than the teas of India, Ceylon, and Java. Ceylon and Java teas are especially apt to lose their fragrance, but all teas "go off flavor" after their first season and do not grade so high as the "new season" crop.

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EDITORIAL

Why go to Swampscott? Three arguments usually combine to bring members to the annual meetings of their organizations: first, the program and the new facts and theories which it presents; second, enjoyable and profitable contact with those who are doing work similar to one's own; and third, the chance of a good time "on the side." The purpose of this article is to urge every member of the American Home Economics Association to consider all three reasons before she decides against going to the Fourteenth Annual Meeting at Swampscott.

Any one who knows the success of the February meeting at Atlantic City, is ready to trust Dr. Blood's committee to provide a program in which the various phases of home economics work will all be represented but which will at the same time give a sense of general unity and balance,—one from which a few famous lions will roar engagingly and during which the most modest among the members may have a comfortable chance to air her views in general discussion.

The faithful attendants at Association meetings know the manifold advantages of coming into personal relations with their home economics colleagues, but these may not be so plain to the new recruits and the habitual stay-aways. It is not merely that one meets those whose names are familiar in books and journals and college catalogues but that from chance chats one learns much of the general drift of professional thought, the consensus and variations of professional opinion, and the sources of the best professional influence. Moreover as one joins in the discussions, the voting, and the informal give-and-take of talk about headquarters, one comes to feel oneself an integral part of an influential organization with a vital share in shaping its policies. We are sometimes told that home economics workers are handicapped by a lack of professional spirit. Is there any better way to develop a professional spirit than to spend a few days as an active part of our largest professional group?

As for the good times "on the side" at Swampscott, every one who knows New England knows how many people year after year bear testimony to the delights of the famous North Shore, its cool ocean

breezes, its fine bathing, its picturesque rocks and smooth beaches, and its wealth of historical and literary associations. Among its hotels the New Ocean House ranks high in comfort, and convenience. Boston is less than an hour away, with good train and trolley service, so that day and half-day excursions to town can be easily arranged. The local committee is planning trips of special professional interest to such Boston institutions as the Nutrition Laboratory of the Carnegie Institution, cafeterias and hospitals, textile collections in the Museum of Fine Arts, Simmons College, the Women's City Club, and Denison House Settlement.

Information will be available at the New Ocean House as to how one may best visit such points of general interest as the Boston Public Library with its famous frescoes by Sargent, Abbey, and Puvis de Chavannes, the Old North Church and Burying Ground, with their colonial and revolutionary traditions, or Harvard University, and the interesting houses of Cambridge.

On the coast, four miles south of Swampscott, is Nahant, formerly the summer home of Longfellow, Motley, and Prescott, and now that of Senator Henry Cabot Lodge; while not much farther to the north are Salem and Marblehead, both full of historic interest, with old-time homes furnished as in the days when the East India trade flourished, and giving to their visitors a vivid idea of former manners and customs. To a student of household arts a visit to those open to the public and to the museum at Salem is worth more than hours of reading; and how about buying a "Jim Crow" in the shop of the House of Seven Gables, now faithfully restored? Scattered along the roads are many tea-houses, interesting both for their location and for the different types of management they represent.

Longer trips by train or motor may be arranged through well-known suburbs to Concord and Lexington, with their battle monuments and their associations with New England literature, or southward to Plymouth, which is just as interesting as last year though the tercentenary crowds are gone. Northward one can visit Gloucester perhaps going one way by the shore boulevards through Beverly, Pride's Crossing, Manchester, and Magnolia, where beautiful modern homes vie in allurements with the shops of famous city firms; and the other way by inland roads and country scenery; and if one has a whole day one may stop in Gloucester, long enough to visit the artist's colony and the gallery on

the moors of Cape Ann, watch the yachts in the harbor, and possibly catch the flavor of the modern fishing trade by a visit to a canning factory.

To make sure that every one gets a sample of these possibilities, the Committee has included on the program arrangements a general picnic supper on the beach, one general sight-seeing trip in town, and a motor trip to Gloucester.

Undoubtedly it costs money to come to the meetings, but remember that they are at a time when many of us need a change and cooling off and when they can be combined with the Fourth of July holiday. Moreover, if one considers the three kinds of satisfaction that they may give, is not the real question, "Can I afford not to go?"

H. W. A.

TENTATIVE PROGRAM

FOURTEENTH ANNUAL MEETING

AMERICAN HOME ECONOMICS ASSOCIATION

NEW OCEAN HOUSE, SWAMPSCOTT, MASSACHUSETTS, JUNE 27-30, 1921

MONDAY, JUNE 27

10.00 a.m. Council Meeting

2.30 p.m. Opening Session. Mary Sweeney, President, presiding

The American Home Essential to the Maintenance of American Ideals

Sarah Louise Arnold, Dean Emerita, Simmons College

The Necessity of the Extension of Home Economics Teaching

Payson Smith, Commissioner of Education, Massachusetts

8.00 p.m. General Session, with the New England Home Economics Association.

Antoinette Roof, presiding

The Place of the Nutrition Worker in the Health Program

Bailey B. Burritt, General Director, Assn. for Improving the Condition of the Poor

Home Economics Women and the Press

Martha Van Rensselaer, Cornell University

TUESDAY, JUNE 28

Professional trips in the morning

2.30 p.m. Extension Section. Madge Reese, presiding

Reasons for Rapid Development of Home Demonstration Work

Margaret A. Ambrose, Asst. Director Home Demonstration Work, Knoxville, Tenn.

Marie Sayles, State Home Demonstration Agent, Ohio

How Club Work Prepares Girls for Earning a Livelihood as well as for Womanhood

Elsie Trabue, State Leader of Girls' Clubs, Connecticut

Jane S. McKimmon, State Home Demonstration Agent, North Carolina

Advanced Plans for the 1921 Home Demonstration Program of Work

Ida S. Harrington, State Home Demonstration Agent, Rhode Island

Laura F. Neale, State Home Demonstration Agent, Texas

Committee's Report "Training and Maintenance of Home Demonstration agents"

2.30 p.m. Round Table, Committee on Teaching. Henrietta Calvin, presiding**Experiments in Coordinating Home Economics Instruction with Home Life Experience**

Etta Flagg, Supervisor of Home Economics, Public Schools, Los Angeles

Edna Groves, Supervisor of Home Economics, Public Schools, Portland

Helen Lee Davis, Professor of Household Arts, Oregon Agricultural College

Teaching Foods in Rural Schools

Cara Harris, Supervisor of Home Economics, Shelby County, Tenn.

Problems in Continuation Classes

Ellen Miller, Merrill-Palmer School, Detroit, Mich.

Committee Report on Essentials of Equipment and Rooms for Teaching Home Economics

Mrs. Calvin, U. S. Dept. of Education

5.00 p.m. Picnic Supper**8.00 p.m. General Session. C. F. Langworthy, presiding****The Need of Further Investigation of the Effect of Commercial and Household Processes on the Vitamin Content of Foods**

John R. Murlin, Chairman Committee on Research in Human Nutrition, National Research Council

The Present Dye Situation

F. E. Breithut, Calco Chemical Company, Bound Brook, N. J.

Plans for Textile Research under the National Research Council

Miriam Birdseye, Chairman Textile Standardisation Committee

WEDNESDAY, JUNE 29**Sight-seeing and professional trips in morning****10.00 a.m. Council Meeting**

Meeting of Federation of Home Demonstration Agents of the North Eastern States. Temporary Chairman, Mrs. Margaret Robinson Ellison, Waltham, Mass. All Home Demonstration Agents attending the conference are invited to attend this meeting.

1.00 p.m. Luncheons

Omicron Nu: Reservations should be made as soon as possible with Marion S. Van Liew, 359 State St., Albany, N. Y.

Phi Upsilon Omicron: Reservations should be made as soon as possible with Jessie Whitacre, Box 203, Logan, Utah

2.30 p.m. Textile Section. Agnes H. Craig, presiding**How Can Home Economics Aid in Training the Textile Chemist?**

Elizabeth Weirick, Textile Testing Laboratory, Sears, Roebuck Co.

The High School Clothing Course

Zella E. Bigelow, University of Idaho

Extension Work in Clothing

Doris Schumaker, Cornell University

A Clothing Facts Bureau

Ada Blanchard

Report of Committee on Standardization of Textiles**The Status of Legislation**

Helen Goodrich, Michigan Agricultural College

Further Data on Purchasing Habits

Ethel Phelps, University of Minnesota

Petticoat Test

Ellen Beers McGowan, Teachers College, Columbia University

Research on Minimum Standards

Grace Denny, University of Washington

2.30 p.m. Round Table, Social Service Committee. Lucy Gillett, presiding

Training for Nutrition Work in Social Service**A. The Advisability of Having in the Training:****1. Methods of Teaching**

2. A Social Point of View. Margery Smith, Dietetic Bureau, Boston

3. A Medical Point of View. Margaret Sawyer, Director Nutrition Service, American Red Cross

B. Subject Matter. Report from the New York Nutrition Council

8.00 p.m. General Session. Mary Sweeney, presiding

The Future for Home Economics Women in Institutional Administration

Mary A. Lindsley, Manager Grace Dodge Hotel, Washington, D. C.

Industrial Opportunities for Training for Women

Mary Anderson, Director Women's Bureau, U. S. Dept. of Labor

Food Supply and Demand

Mrs. Edward P. Costigan, League of Women Voters

THURSDAY, JUNE 30

9.30 a.m. Science Section. Minna Denton, presiding

Topic: Brief Reports of Recent Research**Development of Research Problems from the Field of Experimental Cookery. Various****Methods of Approach**

Day Monroe, Department of Foods and Cookery, Teachers College, New York

An Account of a Specific Research Problem

Mary Barber, Department of Foods and Cookery, Teachers College, New York

The Organization and Possibilities of Cooperative Research in Colleges

Walter H. Eddy, Professor of Physiological Chemistry, Columbia University

The Basal Metabolism of Women and Underweight Children

Katharine Blunt, Chairman Home Economics Dept., Univ. of Chicago

Emulsification in Mayonnaise

Kenneth L. Mark, Professor of Chemistry, Simmons College

The Carbon-Dioxide Diffusion Ratio in Doughs as an Index of Flour Strength

Mildred Weigley, Head of Home Economics, University of Minnesota

Influence of Pressure Cooker on the Vitamin Content of Foods

Louise Stanley, Head of Home Economics, University of Missouri

Studies of the Bacterial Flora of Home Canned Vegetables

Harold L. Lang, Professor of Bacteriology, Carnegie Institute of Technology, Pittsburgh, and Specialist in the Office of Home Economics, U. S. Dept. of Agr.

List of Mimeographed Abstracts Presenting Graduate Work in Home Economics during the Current Year

C. F. Langworthy, Chief of Office of Home Economics, U. S. Dept. of Agr.

9.30 a.m. Institution Economics Section. Octavia Hall, presiding**The Housing and Feeding of Groups of Women**

A. College Students. Flora Rose, Cornell University

B. Working women

Plans for a New Women's Club House in Boston. Florence B. Child, Executive Organizer of the Durant Incorporated, Boston

The Industrial Cafeteria

E. H. Ansell, Luncheon Manager, New England Telephone and Telegraph Company, Boston

9.30 a.m. Round Table. Vocational Committee. Alice Loomis, presiding**Probable Topics:**

The Relation of the Supervision of Smith-Hughes State Work to the Supervision of Other Home Economics State Work

Should a Teacher of Vocational Home Economics in Day Schools be Trained along All Lines of Household Activities?

Part-time and Evening Classes

2.30 p.m. Business Meeting**8.00 p.m. General Session****Home Demonstration Work: A Permanent and National Contribution to American Education**

O. B. Martin, Assistant in charge of Demonstration Club Work, Office of Extension Work South

The Place of Boys and Girls' Club Work in Extension Education

George E. Farrell, In charge of Boys and Girls' Club Work, Office of Extension Work North and West

The Hospitality Committee is making definite arrangements for the following trips. An information desk will furnish details and will help in planning other sightseeing or professional trips that individuals or small groups may wish to take.

Tuesday morning**Professional trips:**

Peter Bent Brigham Hospital and Children's Hospital. Inspection of Wards and Kitchens. In charge of Helen C. Reilly, State Department of Health

Women's City Club and Filene's Restaurant. Inspection of Food Service. In charge of Amy Fackl, Women's Educational and Industrial Union

Boston Museum of Fine Arts. Textile and Tapestry Corridors and Textile Study Room, with decent service. In charge of Ella Spooner, Simmons College

Denison House. Folk Handicraft Guild. In charge of Abby Spear, Simmons College

Carnegie Nutrition Laboratory. In charge of Margery Smith, Dietetic Bureau

Forsyth Dental Infirmary. Research Department. In charge of Mrs. Alzira Sandwall, State Department of Public Health

Junior Extension Work. A demonstration of home economics club work in Wakefield.

In charge of Mrs. Ellison, Home Demonstration Agent, Middlesex County.

Plans for these trips must be made on Monday. People who expect to arrive late but wish to be included in one of the Tuesday morning trips are asked to notify, in advance, the Chairman of the Hospitality Committee, Jeannie Kenrick, 41 Eliot Memorial Road, Newton, Mass.

Tuesday 5:00 p.m.

Picnic supper at Phillips Beach. Hostesses, Mrs. Melville Eastham and Mrs. Emily Hawes. For guests registered at the hotel a picnic supper will be provided by the hotel in place of the regular meal. For other guests the hostesses will arrange for supper, either through the hotel or otherwise.

Wednesday morning

Sight-seeing and professional trips:

Historic Boston: North End, Old North Church, Old South Meeting House, Faneuil Hall, The Fenway. In charge of Susie Sprout, Brookline Schools

North Shore: Salem, Marblehead, Beverly, Manchester-by-the-Sea, Gloucester. In charge of Helen Lockwood, Framingham Normal School

Simmons College, State Dept. of Public Health, Dietetic Bureau, Women's Educational and Industrial Union, Beverly Health Center, may be visited with guides.

Thursday—late afternoon

Boston Floating Hospital. In charge of Margery Smith, Dietetic Bureau

Reservations at the New Ocean House should be made directly with the manager. The rate of \$7 to \$9 per person, per day, American plan, two people in a room, has been offered by the management. This is an exceedingly generous offer, and members of the Association are urged to register, so far as possible, at headquarters. A limited number of rooms at a \$1 or \$2 rate are available in private houses and small boarding houses in Swampscott and Lynn. Information about these may be obtained from Mrs. Melville Eastham, 2 Prescott Street, Cambridge, Massachusetts. The hotel grill room, with a reasonable à la carte service, will be open at the time of the convention. A selected list of hotels and boarding houses on the North and South shores has been prepared by the Hospitality Committee for the benefit of members of the Association who may wish to prolong the holiday in New England. Mrs. Eastham will be glad to give information in advance or at the time of the meeting.

Members arriving with baggage should take a train stopping at Swampscott (25 minutes from Boston) where trains are met by the hotel motor. Train service is more frequent to Lynn, which has a 20 minute trolley car connection with Swampscott. Trains leave the North Station, Boston, via the Boston and Maine Railroad. The Boston Chamber of Commerce has organized a Tourist Department to aid summer travelers and is making every effort to secure tourist rates. It seems improbable, however, that these will go into effect this summer because of the precarious financial condition of the New England railroads.

OPEN FORUM

To the JOURNAL OF HOME ECONOMICS:

I was very much interested in the articles by Michael Davis, Jr., and Bertha M. Wood in the December and January JOURNALS. I feel that there is a great need for definite, correct information which will help, not only the home economics teacher in her work with groups of foreign people, but also the social worker. I am, as you know, working with Jewish people constantly; hence I will be very grateful if you will correct certain minor inaccuracies in the part of the paper pertaining to the diet of the Jews. The paper is so well written that I hesitate to draw attention to these errors, but there are sufficient restrictions in the Jewish diet without adding some that are nonexistent.

The article classifies fish with meat. This is incorrect. Fish is a neutral and may be eaten with milk; in fact it is often cooked with milk. I should feel handicapped, indeed, were this impossible. Since fish is a neutral, it may be eaten at the same meal with meat, but when this is done fish is generally used as an *entré*.

The article further states that cereals are not cooked for breakfast because it takes too long to "kosher" them. Cereals do not require "koshering." During the summer months, when there is danger of maggots and worms getting into the cereal, it must be looked over quickly by "placing it in a hot plate." If the cereal is infested, the insects will not be able to resist the heat, and will crawl out. The process never takes much more than the time it requires to heat the plate. "The length of time it takes to kosher cereals" is, therefore, not the reason why Jewish mothers do not cook cereals for breakfast. Many mothers do not like to get up early enough to cook them, for they do not realize the value of cereals as a breakfast food, but a great many mothers do cook them. In addition to the cereals mentioned in the article, farina, wheatina, and all the other wheat preparations on the market are used in great abundance when available.

One other error is that borsch (borscht) is referred to as "like our vegetable soup." Borsch is a dish usually made of beets, cabbage, or tomatoes. It is made by the addition of some onions and usually "sour salt" (critic acid). It is in this latter respect not at all "like our vegetable soup." Lest teachers make the mistake of recommending it without knowing of the addition of this acid, I draw attention to it here. Borscht is sometimes also made of sorrel served cold with sour cream and chopped hard cooked eggs. The Jews of some districts serve boiled potatoes with borscht, but this is by no means a general practice.

Mention is also made of tripe as not available for use in the Jewish diet. This is a mistake. Tripe if secured from a kosher animal in a kosher market is not only usable, but is used a great deal.

MARY L. SCHAPIRO.

A Method of Collecting Data on the Home. In speaking before women's clubs and other groups the writer has found it an interesting device to send about in the audience a schedule of inquiries on some simple point regarding household management which can be answered readily by those present, and then collect the data before the meeting adjourns, summarize it, and present the facts to the audience. By placing the inquiry in the form of a schedule on which the person answering has simply to place a check mark opposite the item which represents her answer, a considerable number of replies can be quickly secured. Duplicate copies of the schedule can, of course, be used in various parts of the audience. At a meeting of the New Haven Women's Club, in November, 1920, a schedule regarding the approximate monthly food cost per person was thus sent about. Out of twenty-one reports the lowest was \$13 per person per month, and the highest \$40 per person per month, and the "mean" (or that number such that equal numbers of the group spent respectively less than the sum and more than the sum) was found to be \$23. Reducing this to a per capita per diem figure the minimum food cost was 40 cents per person per day, the maximum \$1.30, and the mean 75 cents. At a New York suburban club the figures ranged from 58 cents to \$1.83, with the mean at \$1. These were largely servant-keeping families. Another schedule collected facts as to wages currently paid for laundresses. The schedule for this sort of inquiry can often be made up by placing in a column a set of figures representing various costs and then asking the persons to check opposite the cost which is closest to their own.

BENJAMIN R. ANDREWS.

BOOKS AND LITERATURE

Home Economics in American Schools. By MABEL BARBARA TRILLING, and others, with collaboration of Harold Ordway Rugg. Supplementary educational monograph, published by The University of Chicago, December, 1920, pp. 122. \$1.25.

This monograph will prove especially acceptable to those who are willing to put thought into the reading of it. As indicated in the introductory chapter, it is the purpose of the authors to report the findings of a survey of the status of home economics in the public schools of the United States. The "findings" present evidence of heterogeneity in organization and content of curriculum, teaching emphasis on information and technique rather than on powers of thinking and judgment, dearth of standardized scales and tests, and absence of a definite and worthy program for curriculum making.

The typical picture of work done in the public schools has been drawn from the analysis of several hundreds of courses of study in twenty-two states. The basic assumption in the study of textbooks currently used is that much of teaching is controlled by the textbook. These studies point to the imperative need for a thorough over-hauling of administration of courses that deal with food, clothing, and shelter, and the need of textbooks that will serve as a means whereby "understanding is developed." Conclusions founded upon data contained in the studies are effectively presented through figures and tables.

The chapters dealing with Inadequate Purposes of Teaching and with New Purposes for Teaching set forth lack of clear statements of educational objectives and outcomes, and the need for the perfection of ability of critical judgment and abilities of appreciation. There might well have been further elaborated the perfection of those abilities in accordance with "how children learn."

A suggestive program for the construction of the curriculum is concluded with facing the facts that, if home economics is to justify its position on the ground of intellectual value and social usefulness, it must be built on educational principles, and that, if we are to have a psychology of home economics, we ourselves must write it through our own "laboratory."

Not alone as a survey is the monograph of interest, nor should it be regarded as an isolated piece of work. Rather should it be accepted by the profession as a valuable preliminary step to the scientific study of education in home economics.

INGA M. K. ALLISON,
Colorado Agricultural College.

Vocational Education. By DAVID SNEDDEN, New York: The Macmillan Company, 1920, pp. 587. \$2.75.

This book discusses the fields of agricultural, commercial, industrial, and home-making education; their relation to general education; some of their special and future problems; and the administration of vocational education. Each field is discussed in separate chapters and other chapters are devoted to subjects of interest in the organization of vocational education, which gives the impression that the book is composed of a collection of treatises on phases of vocational education interests. The author has spent many years in the study of vocational education in his effort to discover terminology that will be adequately understood.

In the first chapter the meaning of vocational education is very interestingly presented. In characteristic style the definitions are stated clearly. This is of great advantage because there is no question left in the mind of the reader as to the author's point of view. Furthermore, it is shown that vocational education and liberal education differ in their aims even when the same

materials are used for both, and that the methods of presentation differ depending upon the aims of each. Some persons will disagree with the author in his view that, when vocational training is given, all thought of liberal education should be left for after work hours. The author believes that all vocational training should be intensive and given either while the worker is on the job or just preceding the acceptance of a job. He labels all other methods "cold storage" and questions their functioning ability.

In the chapter on Vocational Homemaking the author urges, rightly, that a further analysis of the situation is necessary before undertaking to prescribe work in this field. The analysis of the home as given is somewhat disconcerting because the income figures quoted are several years out of date, but very good questions are raised concerning the necessity for the analysis of homemaking conditions under different income situations, and adjustments are suggested which for the greater part have been neglected by the average home economics instruction. Attention is drawn to the fact that "compositeness" is characteristic of the homemaker's job which for that reason is still very primitive in its organization. The analysis given of homemaking for a vocation and for general education is helpful, although in each case stress seems to be laid upon the technique and little space given to the consideration of the social graces of homemaking.

The criticism given that the interest of young women who come to evening schools "centers about cooking dishes suitable for parties" is surely obsolete. It is the experience of the reviewer that young women who have the initiative to attend evening school come with a better purpose in mind.

The "case method" of approach, which is offered as a solution, is an excellent suggestion, but would be more valuable to the homemaking program if it were developed as a community study rather than as a study of individual cases.

The suggested "project method" is evidently, according to the text, intended to mean what is generally given in home economics instruction as "home projects." This is confusing because of the similarity of

terminology to the "project method" of teaching in general.

In the chapter on the Probable Future of American Women a rather full account is given of the well-known conditions for women as they exist today, followed by a suggestion that the vocational training of women for the job and for promotion in the job would help solve the problem.

The author raises a great many questions throughout the book which he does not attempt to answer and which to a large extent have no prospect of being satisfactorily answered. While he suggests few solutions for the problems which he states as existing, his premises are fundamentally correct, and the book is a very stimulating piece of work to those interested in the field of home economics either as a vocation or as liberal education.

HELEN LIVINGSTONE,

Director Girls' Continuation Schools, Detroit.

Chemistry for Public Health Students. By E.

GABRIEL JONES. New York: E. P. Dutton & Co., 1920, pp. 244. \$2.50.

This book, written by public health students of the University of Liverpool, describes in excellent form methods for the analysis of materials which are likely to come into the laboratory of a Board of Health. These include milk, water, butter, other foods, beverages, water and sewage, air and disinfectants. The methods as given differ to some extent from those in general use in this country. Thus the book, excellent as it is, will hardly be of much service in training our students.

JOHN F. NORTON,

University of Chicago.

Sheila and Others: The Simple Annals of an Unromantic Household. BY WINIFRED COTTER. New York: E. P. Dutton & Co., 1920, pp. 196. \$2.00.

A delightfully written account of the various employees of a Canadian household—the general helper, the furnace man, the laundress, and "others." Each chapter is an excellent character sketch, and under it all are many bits of true philosophy. The book is really a series of interesting short stories.

ALICE P. NORTON.

PAMPHLETS RECEIVED

Issued by the U. S. Department of Labor, Children's Bureau:

Eighth Annual Report of the Chief.

Child-Welfare Programs. Study Outlines for the Use of Clubs and Classes. Bureau Publication No. 73.

Industrial Instability of Child Workers. Bureau Publication No. 74.

Infant Mortality. Results of a Field Study in Akron, Ohio. Bureau Publication No. 72.

Results of a Field Study in New Bedford, Mass. Bureau Publication No. 68.

A Summary of Juvenile-Court Legislation in the United States. Sophonisba P. Breckinridge and Helen R. Jeter. Bureau Publication No. 70.

Issued by the U. S. Public Health Service:

Keep Well Series: Bottle Feeding for Babies, No. 10; Breast Feeding Her Baby, No. 9; Motherhood, No. 3.

Sanitary Disposal of Sewage Through a Septic Tank. H. R. Crohurst.

Issued by the U. S. Department of Agriculture:

An Agricultural Almanac for 1921. Farmers' Bul. 1202.

Baking in the Home. Farmers' Bul. 1136.

The Farm Kitchen as a Workshop. Farmers' Bul. 607. (A revision of a former bulletin.)

Home Laundering. Farmers' Bul. 1099.

House Cleaning Made Easier. Farmers' Bul. 1180.

Milk for the Family. Department Circular 129.

Peppers. Department Circular 160.

Issued by the Department of the Interior, Bureau of Education:

Administration and Supervision of Village Schools. Bul. No. 86.

Development of Agricultural Instruction in Secondary Schools. Bul. No. 85.

The Eyesight of School Children. Bul. No. 65.

Health Education Bulletins: Child Health Program for Parent-Teacher Associations and Women's Clubs, No. 5; Further Steps in Teaching Health, No. 6; Health Training for Teachers, No. 8; The Lunch Hour at School, by Katharine Fisher, No. 7; Summer Health and Play School, No. 3; Teaching Health, No. 4; Wanted—Teachers to Enlist for Child Health Service, No. 1.

Health Education Charts: Class-Room Weight Record; Health Strength Joy; Right Height and Weight for Boys; Right Height and Weight for Girls; What is Health?

Home Economics Courses of Study for Junior High Schools. Home Economics Circular No. 9.

Joy and Health Through Play. George E. Schlafer.

Lessons in Civics for the Three Primary Grades of City Schools. Teachers' Leaflet No. 9.

Motion Picture Films of Educational Value. Extension Leaflet No. 2.

The National Crisis in Education: An Appeal to the People. Bul. No. 29.

The University Extension Movement. Bul. No. 84.

Reorganization of Science in Secondary Schools. Bul. No. 26.

Issued by Iowa State College, Ames:

Care of Clothing. Cora Leiby. H. E. Circular No. 23.

Food for the Family. Nell M. Barnett. H. E. Bul. No. 10.

Home Millinery. Cora Leiby. H. E. Circular No. 22.

The Hot Lunch for School Children. Nell M. Barnett, H. E. Circular No. 20.

- Pictures for the Home.* Marion L. Tucker. H. E. Circular No. 21.
Refinishing and Care of Furniture. Marion L. Tucker. H. E. Circular No. 19.
Why Use Milk. Nell M. Barnett. H. E. Circular No. 18.

Issued by the Federal Board for Vocational Education, Washington, D. C.:
Survey of Junior Commercial Occupations. Bul. No. 54.
Trade and Industrial Education for Girls and Women. Bul. No. 58.
A Unit Course in Poultry Husbandry. Bul. No. 63.

Issued by The American Institute of Baking:
First Annual Report 1920.
Plan for the Registration of Baking Materials. Bul. 4.
Standards and Definitions of Food and Materials. Bul. 3.
Studies on the Control of Rope in Bread. Bul. 5.

Issued by the publishers listed:
Adenoids and Arithmetic Board of Education, Cleveland, Ohio.
Bibliography on the Care and Feeding of Infants and Children. Bureau of Child Hygiene, State Department of Health, Trenton, N. J.
Bread—The Vital Food. Claudia Q. Murphy, 41 Union Sq. W., New York.
Canning and Preserving. University of Maine, Orono, Maine.
Child Legislation in Iowa. Frank E. Horack. Univ. of Iowa, Iowa City.
Connecticut Home Grown Foods. Bula. 22 and 24, July and August, 1920, Conn. Agr. College.
Cosmetic Nostrums and Allied Preparations. American Medical Assn., Chicago.
The Development of Research in the United States. James Rowland Angell. National Research Council, Washington, D. C.
Elementary Embryology for High School Girls. Ann Criswell Arbuthnot. Board of Education, Cleveland, Ohio.
Growing Sweet Peas. A. C. Beal. N. Y. State College of Agr., Cornell University, Ithaca.
Heat Penetration in Processing Canned Foods. W. D. Bigelow. Research Laboratory, National Canners Association, Washington, D. C.
Home Economics in Milwaukee-Downer College. Susan F. West. Milwaukee Downer College Bulletin, Milwaukee, Wis.
Home Training Bulletins: A Better Crop of Boys and Girls; Teaching the Boy to Save; Teaching the Girl to Save; Training the Boy to Work. Wm. A. McKeever, Lawrence, Kan.
How to Teach Canning and Jelly Making in Rural Schools. The Hampton Normal and Agricultural Institute, Hampton, Va.
Material on Geography. Normal School Bul., Eastern Ill. State Normal School, Charleston.
Proceedings of the Joint Convention of the National Society for Vocational Education and the Vocational Education Association of the Middle West. Bul. No. 32. National Society for Vocational Education, New York City.
Sixth Annual Report of the Visiting Housekeeper Association. Detroit, Mich.
Standardization of Domestic Service. Reprint from the *Labour Gazette*, March, 1921.
Suggested Budgets for Newlyweds. Home Economics Bureau, Society for Savings, Cleveland.
Water-Soluble B in Cabbage and Onion. Bertha K. Whipple. (From Dept. of H. E., University of Chicago.) Reprint from *Jour. Biol. Chem.* Vol. 44, No. 1, October, 1920.
Whitewash and Cold Water Paints. Compiled by Tyrrell B. Shertzer. Bul. 304, National Lime Association, Washington, D. C.

NEWS FROM THE FIELD

Oregon Agricultural College. The completion of the second unit of the home economics building¹ at the Oregon Agricultural College is a big step in the development of home economics in the West and gives to the college one of the largest buildings of the kind in the United States.

At the formal opening, March 11 and 12, a huge exhibit, featuring each of the fifty courses offered in the School of Home Economics and several of the allied courses of work on the campus, attracted and deepened the interest of students, graduates, parents of students, and other citizens of the state. The extensive presentation of the work of the school is indicated in the program, which is given here somewhat in detail because of its valuable suggestions to those interested in exhibits.

The Nursery and the Play Room—Display of model nursery and playroom equipment; children of visitors cared for during exhibit hours.

Child Nutrition Laboratory—Clinic for weighing and measuring children and for advice concerning malnourished children.

"The Age of Innocence"—Showing of infant wear and accessories to the baby's toilet.

The Tea Room—Where guests were served light refreshment.

The Home and the Family—Graphic information concerning health, income, and management.

The Housewife and Her Tools—A working exhibit of labor-saving devices.

Light and Water for the Farm Home—A working demonstration by the farm mechanics department.

Boys and Girls Club Work—Work in the state shown and explained.

Food Selection and Preparation—Various cuts of meat shown and located by charts (arranged by animal husbandry department); exhibit of foreign and domestic cheeses; exhibit of cereals and flours; demonstrations of canning and bread-making methods and products; illustration of adequate meals for families and individuals, especially children; types of school lunches.

Home Nursing—Working exhibit of routine with patient; bandaging and emergencies.

The Home Library—Good arrangement and good books shown by college library.

The "Festive Board"—Types of table services and arrangement of fifty years ago.

"Ye Olde Curiosity Shoppe"—Keepsakes of wearing apparel and household articles.

"Art Panels from the Orient"—Display of oriental rugs; demonstration of weaving by native Armenian girl.

The Art Department—Student's work in design and color as related to home economics.

Good Taste in Home Furnishings—Arrangements of draperies, linens, and china.

Clothing—Exhibits of dresses, suits, and wraps appropriate for different ages and occasions; made-over clothes; exhibits of lace and furs.

Fashion's Flower Garden—Fifty models dressed in simple attractive costumes made in the household arts classes.

Suites of rooms, including living room, dining room, and kitchen, properly, economically, and artistically furnished for low and moderate incomes.

College Practice House open to guests during entire time of the exhibit.

¹ Anyone interested may borrow the plans of the three floors by sending 10 cents in stamps to the JOURNAL Office.

The Constantinople Fund. The Constantinople Fund Committee has submitted to the Association a full report of funds collected. This report by states is published in the *Bulletin*, but the following summary is presented here for the benefit of the readers of the Journal, all of whom will watch with keen interest Mrs. Norton's work in establishing the Department of Home Economics in the Constantinople College.

SUMMARY OF FUND

Amount contributed by educational institutions and organizations*.....	\$5,034.27
International Institute of education (paid directly to Mrs. Norton).....	800.00
Individual contributions**.....	708.75
Ellen C. Richards Memorial Fund.....	200.00

Total amount contributed..... \$6,743.02

* The organizations are home economics associations and clubs, teachers associations, and the home economics sororities Omicron Nu and Phi Upsilon Omicron.

** This includes the amounts given by the two sororities in addition to their gifts through the states.

REPORT BY DISTRICTS

For Educational Institutions and Organizations

<i>District</i>	<i>Allotment</i>	<i>Amount received</i>
Eastern.....	\$1,800.00	\$1,120.79†
Southern.....	800.00	873.05
Central.....	1,600.00	1,531.29‡
West Central.....	900.00	467.75‡
Pacific.....	700.00	1,034.35
Canada.....	200.00	7.04
Total.....	\$6,000.00	\$5,034.27

† The \$300 from the International Institute of Education should be added to this amount for the Eastern District.

‡ Contributions are still coming in.

The session of the National Academy of Sciences held in Washington, April 25 to 27, was of unusual public interest because many of the speakers discussed problems of human life.

Dr. Simon Flexner, dealt with epidemics from the experimental side. Dr. Jacques Loeb, Head of the Department of Experimental Biology, Rockefeller Institute, presented the results of two years of investigation of the physical and chemical behavior

of proteins. Dr. F. G. Benedict gave an illustrated account of taking skin temperature of pachyderms at the Bronx Zoological Gardens. Professor E. N. Thorndike of Columbia University showed how the method of mental tests, hitherto used mostly in detecting the feeble-minded, may be extended to distinguish the higher grades of human intelligence. Professor Raymond Pearl of Johns Hopkins University presented a paper on the Specific Forces of Mortality.

The New England Home Economics Association held its February meeting under the auspices of the Social Service Section, Margery Smith, Chairman.

Lucy H. Gillett, Superintendent Nutrition Bureau, Association for Improving the Condition of the Poor, New York City, gave a clear and convincing analysis of the training and opportunities for nutrition workers. The varied needs that must be met by the nutrition worker require a thorough knowledge of foods, their nutritive values, amounts, and costs, and their relation to certain diseases; a knowledge of hygiene, of sanitation, of bacteriology, of standards of living; a command of the principles of psychology, of child training, and of social problems; thorough training in statistical methods, and a love for research. Opportunities for the nutrition worker are increasing, and the calls are more numerous than can be answered. Rural demands are pushing, and this field calls for the broadest combination of mental, physical, and spiritual equipment. As an adviser in illness the nutrition worker is called upon to supplement the physician's service, and should stand on a par with him in skill and remuneration.

Ten minute talks followed Miss Gillett's address, showing how the Baby Hygiene Association, the neighborhood kitchen, the home demonstration agent, and the nutrition worker in industrial plants are achieving results. There are many fields, many needs, many methods, but one goal—healthy, efficient human beings.

The March program was arranged by the Teacher's Section under the subject, *The Need for More Extended and Vital Instruction in Home Economics*. Frank W. Wright from the State Board of Education, spoke upon the subject, *Does Home Economics Teaching Function as it Should for the Girl of High School Age?* He forcibly advised immediate riddance from school curricula of "the excess baggage." Public opinion was never so ready as now to accept home economics teaching, and this advantage should be seized. The time has come when, both figuratively and literally, home

economics must be taken out of the basement and made to occupy the dignified position it deserves. It should be taught in every school, and made to function in the home.

Mrs. Calvin, out of her experience and surveys of home economics teaching, acknowledged that much of it falls far short of meeting the needs of the students. Better training is needed for teachers, and the course of study must be an all around course, based upon the needs of the home of today.

The discussion that followed laid emphasis upon time allotment, methods, and credits.

The luncheon at the Hotel Brunswick attracted 108 persons. The after luncheon speakers were Mrs. Calvin; Mabel Bragg, Assistant Superintendent of Schools, Newton; and Agnes H. Craig, Supervisor of Home Economics, Springfield.

Mrs. Calvin made a plea for more uniformity in home economics standards as regards equipment, courses of study, and credit values.

Miss Bragg's work centers around the health of the individual, the question in all grades being "What do you need to live your best life today?" the answer being given by the formation of health habits, good manners, and social interests.

Miss Craig emphasized the importance of the right point of view of the layman and the educator. Each of these must be shown that home economics deals with better living, not with the mere performance of tasks; that applied science, art, and economics are to overcome drudgery; and that good citizenship requires the best of life and living.

State College, Brookings, S. D.
Among the new courses for women introduced this year is one which prepares for the management and operation of tea rooms. The course requires of each student the actual management of a model tea room for one week. Under the management of the nine women enrolled this year the tea room has been so popular that it was impossible to accommodate all the students and faculty members who wished to patronize it.

The Fess Home Economics Amendment to the Vocational Education Act, was re-introduced in the Sixty-seventh Congress on April 11 and referred to the Committee on Education. Its new number is H. R. 21.

The proposed amendment will give more federal funds to the establishment of home economics classes in public schools. It will apportion moneys for home economics education on the basis of the total population of a state, thus doing away with one curious restriction in the original law, which apportioned the moneys on the basis of a state's urban population.

An important proviso of the new bill is the stipulation that part of the funds must go to the establishment of part-time and evening classes for workers over fourteen years of age who have entered upon employment. Such classes will mean opportunities for the housewife and the woman at work outside the home.

It is hoped that every home economics worker will take a personal interest in the passage of the bill. Let your senators and representatives know you are back of it. The Legislative Committee of the American Home Economics Association is counting on your coöperation.

American Extension Methods in France. Miss Ola Powell of the Office of Extension Work, South, of the United States Department of Agriculture, at the invitation of The American Committee for Devastated France, sailed in April for France. She will be associated for three months with Madame Lucile Devouge who, as a representative of the French Government, has been studying home demonstration work in this country. Miss Powell also expects to travel in other European countries before her return, for the purpose of studying conditions and securing ideas and suggestions that may be applied in rural extension work in this country.

The New York Society of Craftsmen announces a summer school July 5 to August 12, 1921, with courses in batik, block printing, dyeing, history of ornament, leather

working, weaving. For further information address Charles E. Pellew, President New York Society of Craftsmen, 10 East 47th St., New York.

Teachers College, Columbia University, announces summer courses in economics and social science in relation to the home. Inquiries should be addressed to Professor B. R. Andrews.

An Institute of Child Hygiene and Nutrition, to be held at the School of Public Health, Louisville, Kentucky, June 6 to 18, will offer a course of intensive study in the diets of children of pre-school and school age, including school lunches; in clinics; and in the general everyday care of the child.

The course is open to home demonstration agents, nurses, social workers, teachers, mothers, physicians, and others interested in the welfare of the child.

Dr. Edith B. Lowry of the Bureau of Child Hygiene of the United States Public Health Service, and Dr. Annie Veech, Director of the Bureau of Child Hygiene for the State Board of Health of Kentucky, will conduct the Institute.

The University of Iowa announces a comprehensive series of courses to be given in the summer session for the training of teachers in nutrition and health of children. These courses are under the direction of the Department of Home Economics, with the cooperation of the Child Welfare Research Station, the Observational Schools, the Colleges of Medicine and Dentistry, the School of Public Health Nursing, and the Department of Public Health.

The Southern Home Economics Association will meet at Nashville, Tennessee, June 9-11, with headquarters at the Hotel Hermitage. This meeting will be in the nature of a regional conference. Assemblies will be in the hotel assembly room and at Peabody College. An interesting program is in the making, and a large attendance is desired. Arrangements will be made for drives and picnics and as much open air as possible.

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HOUSEHOLD ARTS FOR JUNIOR HIGH SCHOOLS¹

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Should we teach household arts in junior high schools? Should we require it of all girls or leave it as a free elective? Should it be given about ten per cent or preferably thirty per cent of school time? Should we make it an exacting and strenuous, or an amateur and play-like, subject? Should we especially emphasize practical skills, or technical knowledge, or ideals and appreciations?

But there remain more fundamental questions. What do we mean specifically by household arts? What are its values—cultural, healthful, civic, vocational—to girls of junior high school ages? What are the other values—in arithmetic, English language, music, hygiene, general science, history, geography—all of more or less importance, that must be sought on behalf of these girls, through their schooling? Are all junior high school girls substantially alike as to their abilities, interests, prospects, and needs? What relationship can household arts be made to bear towards self-service in personal hygiene, thrift, right living, life guidance; towards the vocation of assistant homemaker, as daughter or domestic; or towards full responsibility homemaker, as wife and mother, or, occasionally, as wage-earning housekeeper? None of these questions are as yet adequately answered in the technical literature of education. We can, however, obtain some light on them by applying to their study certain devices of sociological analysis.

¹ Address delivered before the Household Arts Section of the Eastern Arts Association, Baltimore, March, 1921.

First, in order that we may not be embarrassed by problems growing out of purely administrative limitations—in order, that is, that we may study problems of educational values under optimum conditions—let us assume the existence of a junior high school of 1500 pupils, receiving only seventh and eighth grades, besides all pupils of lower grades who are over 12 years of age. We will think of this as an amply equipped, ably staffed school, serving a prosperous American city of 50,000 population.

This school, then, contains the children of prosperous, comfortable, and poor parents—some recent immigrants, the majority of white “native stock.” Nearly all the boys and girls over 12 and under 14 or 15 are here—the super-average, the average, and the sub-average in intelligence. Some will eventually go through college, some will leave to go to work just after their fourteenth birthday. Four-fifths of the girls will be “gainfully employed” for a few years after leaving school. Ninety per cent of those of lower economic station, and seventy per cent of those of higher economic station will marry before twenty-five. Of those who marry, perhaps half, by any reasonable standards, will become good, but not best, homemakers by virtue of pick-up and trial-and-error methods, even if the schools teach nothing resembling household arts. Perhaps half will fall short of being even average good homemakers if left to home training and pick-up methods.

The seven-hundred-fifty girls of this school are, obviously, a diversified crowd, diversified as respects abilities, environments, interests, prospects. It is the business of the junior high school, the integrating function of education, to smooth out some of these diversities, and possibly to accentuate others, on the principle of “to them that hath shall be given.” Let us diagnose certain social case groups.

In case group Q are nearly 100 girls of whom the following facts are substantially true: they come from prosperous or comfortable homes; they are above the average in intelligence, mentality, or ability, however named; they will almost certainly go through high school, and many will go to normal school or college; their homes give them little mastery of the executive or “doing” side of home crafts, but do give them a large stock of appreciations of good dress, good food, clean rooms, social behavior, and orderly households. From their homes, too, they get a goodly stock of habits and some ideals of hygienic and sanitary practices. They have now little feeling of responsibility for the home, or vital interest in their own later home life. They dearly love “good

times" and take comfortable homes for granted as they take air and city water. It may be a reasonable expectation that, as women, they will have none too good health, either as gainful workers or homemakers. Their ambitions will tend to outrun their physical and financial powers, and not a few will deliberately evade the serious responsibilities of homemaking and family life from social selfishness or under the mistaken assumption that other things are much more important. Some will in mature years become civic workers of a high order.

Case group R consists of the daughters of prosperous families, but afflicted with less than average intelligence. Their parents will probably keep them in schools of one kind or another until they are 18, or even 20, but they cannot graduate from high schools. Not a few of these will be selfish, self-indulgent, extravagant, foolish. Some will find work in clerical positions, or salesmanship; and some will remain as dependents. A large proportion will marry, and their homemaking will be variable.

Case group S consists of 100 girls of less than average ability from the poorer homes of the city. Few of these girls will remain in school after the period of compulsory school attendance comes to an end. They will seek wage-earning work in factories, ten-cent stores, and restaurants. All but a few will have married by 24, mostly to artisans, railway workers, clerks on inferior wages. Their homes will be cramped, and as children increase, their lives will tend to become dingy, a bit sordid, and lacking in serenity, at least as judged by standards of social workers.

Case group T consists of at least 50 girls of superior or higher intelligence from low economic surroundings. These will move rapidly through to the high school where many will take stenography, and a few will prepare to teach. They must become at least self-supporting by 16 or 18 and may even be called upon to help support their families. Not a few will tend to overwork their none-too-strong bodies. They will become ambitious to marry above their fathers' station, and a considerable proportion, not finding just what they want, will prefer celibacy with its independence and higher standards of dress and amusements.

While these case groups will in actual practice more or less blend into each other, it is practicable, nevertheless, to consider them separately for the purposes of curriculum making, and, in so large a school as that here postulated, it would be easily and economically practicable, by

elective or alternative studies, to vary the programs of the different groups, in so far as parents and teachers might agree upon differences of abilities and needs.

It is not practicable here to analyze all the curriculum offerings or requirements that the junior high school should make on behalf of these various groups. But it ought to be clear that the partisans of no one subject—whether that be grammar, music, French, civics, or household arts—can hope finally to settle, by themselves, the place and scope of their favorite study in the curricula to be offered. In fact the proponents of household arts ought no more to be expected to settle questions of the social need of their subject than a cook should determine a man's need for a meal, or a tailor a man's need for a new suit.

The junior high school ought, doubtless, to require all of these girls to study some essentials of civics and American history. Whether it should require all, or only the backward in spelling, handwriting, hygiene, and arithmetic to take more of these subjects than they have had in their first six grades depends, obviously, upon what we agree to require as desirable minimum standards in these subjects—something that we have not yet dealt with by scientific methods.

We have good grounds for believing that no strictly vocational education, in the sense of training, is practicable or desirable during this under-fourteen period. The girls who go to work at or soon after 14 will usually enter specialized vocations for which a few weeks of specific training, apart from the junior high school, would give all the preparation practicable at this age. But it ought to be expected that at 17 or 19 or 22 many of these girls could and, given facilities, will "come back" to specific vocational "upgrading" schools for adjustment to adult vocations. A few hours, probably thirty, or sixty at most, might well be devoted to vocational guidance during the six months next preceding departure from the junior high school.

Since this paper states the results of a quest for educational values, let us clear the way by assuming (what the present writer believes is the correct solution) that in this junior high school: (a) no household arts is prescribed for all pupils; (b) all girls are required to take a course each year (equal to sixty clock hours) of hygiene, plus needed physical training; and (c) each girl is given opportunity to elect, as alternative to other courses, one or two household arts courses from the three that are offered, as described below.

What household arts or related courses might such a school offer? The following at least are theoretically feasible:

a. Two "Home Self-Service" courses, A for 7th grade and retarded girls, and B for 8th grade, 90 hours each, designed especially to teach wage-earning girls or those who are later to become college girls to care for their own health, finances, apparel, associations, and general living conditions. They emphasize instruction in such technical matters as food values, wholesome recreation, and rest; and training in short units of clothing upkeep and renovation, laundry, and possibly light food preparation, to which is added instruction in right buying, simple personal accounts, and possibly social recreation. Some of the powers and appreciations thus acquired will obviously carry over in part into later homemaking. But it is a mistake to call this work homemaking, since the essence of true homemaking is service to others, and only incidentally to one's self. Besides, this is not the age at which we may expect motives (except amateur) for homemaking to be active, except in rare cases; whereas a substantial proportion of the girls, especially from poorer homes, may have very genuine motives for "home self-service."

b. Two courses, C and D "Household Arts for Amateurs," maximum of 180 hours each year, would use the scouting spirit, involve little drudgery and many attractive projects, accompanied by much alluring reading about homes, foods, children, parties, house care, nursing, home gardening, pets. A general cultural course designed to enrich experience first of all, but secondarily to give appreciations of homes, homemaking, and modern scientific and artistic achievements in domestic fields. Where cooperation of homes could be secured, projects—meal preparation, cake making, child care, room care, furniture renovation, laundry, garden, dressmaking, entertainment—would be developed from the school, approved by the mother, and executed by one or a group of pupils under supervision of the teacher. Not only should not such courses be required of all, but no particular projects or readings should be required of all alike. The utmost flexibility should prevail. Pupils failing to take hold properly should simply be asked to withdraw, at least for a time, since they disturb the proper voluntary spirit.

c. A "Technical Homemaking" course, E, 180 hours, 4 hours per week for one year, but open to mature girls of 7th or lower grades, as well as 8th grade girls. A course as rigorous in its methods as arithme-

tic, based upon careful study of a central text book, supplemented by laboratory practice, and calculated to give a store of knowledge, and some ideals, rather than skills. Such a course should give much information about modern advances in homemaking—buying, food values, child health, use of power driven appliances (not overlooking that American urban homes have generally achieved two at least of the greatest labor saving devices ever invented—piped water supply and piped sewage disposal), art in domestic life, the deeper social significance of home and family life. It is the writer's belief that such a course as this would appeal to fifteen or twenty per cent of girls, especially the more imaginative and ambitious, and would give them at least as much profit as their grammar and arithmetic do now, and more than will the later physics and foreign language. Such a course should never be a required course. In a small school, however, administrative limitations in respect to alternatives might make it, if the one chosen to be offered, in effect required, but that is due to poverty of opportunity, not educational need.

Let us assume our school equipped with a good advisory service. What courses would these advisors recommend to the girls most nearly representing the various case groups?

For case group R they would recommend courses C and D—Household Arts for Amateurs. They would do this in the expectation that these girls have yet several years to spend in schools, and are practically certain to study some kind of "hard" home economics later. Furthermore it is important that these girls of meagre endowment, but favoring environment, be stimulated along lines of high grade practical arts activities to offset the discouragements they experience from failures in abstract studies.

For case group S, would be recommended Home Self-Service courses A and B, on the assumptions: (1) that these girls, because of their environment, have much to learn as to care of health, earnings, characters; (2) that, going soon into wage-earning work, they will cease to be interested in the executive side of homemaking, although as boarders and in self-supporting capacities they may be expected to develop a wide variety of tastes and appreciations of good, fashionable, and perhaps costly things; (3) that if society is wise it will offer very concentrated and practical full-time courses in homemaking (8 hours daily for perhaps three months and based chiefly on the out-project method—productive projects away from homes—and preferably not in the girl's

own home) at ages 20-25, preferably just preceding marriage, supplemented by very practical afternoon extension courses for them after they begin homemaking.

c. For case groups Q and T, recommendations would vary according to individuals. But, given the opportunity of electing course E as an alternative to an advanced course in arithmetic, or a foreign language, or English grammar, it is certain that many of these bright girls would take the "hard" technical course E, especially as it is not certain that with their ambitions they can or will pause for similar work later in school or college. Many of these girls will become intellectual leaders. From some of them will come future teachers of home economics. If they are to be saved, in a physical sense, from themselves, they should early acquire better perspectives as to health values, maternity values, and sound home social values than are now acquired by our ambitious, conscientious, energetic, middle class daughters. They may be expected to control their future environments and conditions more on the basis of "reason and science" than on the basis of faiths and skills.

But none of the courses should be closed to girls from any case group, except for two reasons: (a) they need the time for other studies more essential to their purposes, if these are defined, or to "make up" deficiencies; and (b) after entering a course they fail to develop the proper spirit, important in all courses, or the required ability (a warrantable exclusion only from Course E). On the other hand, I see no reason why any girl should be required to take any of the courses named if the school is large and rich enough to offer useful alternative courses.

If we can once agree upon certain fundamentals of educational aim by the methods of study illustrated, we shall then be ready to pass to a consideration of situations involving administrative or other limitations.

What, for example, should be done in a small junior high school? What, at a time when perhaps we can obtain no acceptable teachers for courses A, B, C, D? What in a school (e.g. colored girls) where work of this character is socially "taboo"? What in a school without laboratory equipment? What in a school whose authorities are so strong on "higher" arithmetic, verbal history, English grammar, multiple-fact geography, and the rest, that no time remains for household arts?

The writer will not now undertake to deal with these questions. But he must urge that the time is passing when the partisans of special subjects will be permitted to be the chief pleaders for their favorites.

Home economics teachers are, of course, specialists in knowledge of how home economics should be taught; they should be able to give us a large amount of knowledge as to the usefulness of these subjects; but neither they nor other specialists must usurp the prerogatives of deciding on comparative values. For some girls French may be much more worth while than home economics; but the French teacher cannot decide this and neither, I think, can the home economics teacher. Compulsion is nearly as bad in education as in politics, religion, or marriage. The writer is willing to compel the taking of any subject to any degree of proficiency in any school or for any college where experts in educational values have agreed upon the value of the subject for the type of student concerned. But in view of our present stupendous ignorance of educational values above the primary grades (and the problem is only partially solved there) it appears to him a violation of all sound policies to require certain studies of all—whether those be Latin, algebra, military drill, needle work, household arts, or general science.

CLIFF DWELLER'S BREAD

Some five hundred or more years ago, one of the original Americans, a dweller of the cliffs in what is now Mesa Verde National Park, Colorado, forgot to eat his supper, and Dr. J. Walter Fewkes, archeologist of the Smithsonian Institution, has found the cereal portion of it. Through all these years, the dry air of that region has preserved this ancient, fried corn bread, made into a form similar to the modern American griddle cake or the Mexican tortilla.

This ancient food was found on the plaza of Oak-Tree House, one of the many cliff dweller ruins that Dr. Fewkes has unearthed and reconstructed. He also found the slanting stones between which the housewife of the ancient community crushed the corn; and even the straw brush used in scraping up the corn meal had lain near by through the centuries.—*Science Service.*

SANITATION IN FOOD PRESERVATION¹

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While dirt cannot now be regarded as the breeding place and origin of most infectious diseases, it just as certainly does play an important part in the modern problem of food preservation and food distribution of which the canning industry is such an essential feature.

The process of preserving food by heat possesses the enormous advantage that the vast majority of known disease germs are killed by even a few moments' exposure to the temperature of boiling water. The use of heated food, therefore, constitutes one of our greatest safeguards against the entrance of disease germs and other parasites through the alimentary tract. The thorough cooking of pork is known to protect against the dreaded trichinosis due to the parasitic worm trichinella. It is well known that many of the most famous instances of food poisoning have occurred after the use of raw or partly cooked foods, such, for example, as the sausages and other meat preparations made from uncooked animal tissues and used widely in Germany and some other European countries. These outbreaks of food poisoning are due in many cases to certain bacteria resembling the typhoid bacillus which are present in the uncooked food. In some of these outbreaks the fact stands out clearly that only those individuals who have eaten the meat raw or imperfectly cooked have been affected, while others who have partaken of meat from the same animal after thorough cooking have escaped altogether.

In this country, where the use of uncooked meat foods is relatively uncommon, outbreaks of meat poisoning of this type have been rarely reported. It is no wonder that sanitarians have long recognized the value of thorough cooking in preventing infections, and that the application of high temperatures to the preparation of food has been called "the greatest sanitary step ever taken by the race." The men of the Old Stone Age do not seem to have cooked their food, but in the later period, 10,000 or 12,000 years ago, cooking utensils of various kinds were apparently in common use.

¹ Address delivered before the Fourteenth Annual Convention of the National Canners Association, Atlantic City, January, 1921.

While there is no doubt that the heating of food is an important defense against infection, the large-scale preservation of food by heat has met with certain practical difficulties. One of these is the difficulty, not so great now as earlier, of hermetically sealing the heated food. If the container is not air-tight, every housewife and every canner knows that air and the germs may enter and cause spoiling. In the commercial industry of canning at the present day I understand that while leaky cans sometimes occur they are relatively uncommon.

Far more serious than the problem of imperfect containers is the occasional failure to destroy the germs in or upon the food product. This is due to the occurrence among bacteria of certain highly resistant bodies called spores. Not all bacteria produce spores and the true significance of spores in the life of bacteria is not fully understood, although they seem to be a sort of protective device for tiding the species over a period of hard times. Some of them are extraordinarily resistant. I had in my laboratory at one time a bacterium the spores of which would withstand boiling for 16 hours. It is the spore-producing bacteria that make most of the trouble in the canning industry, and the origin and distribution of these forms are consequently of great practical importance. It is a piece of good fortune for the human race that relatively few of the disease germs affecting man possess a resisting spore stage, and in consequence nearly all dangerous bacteria are killed by a few moments' exposure to the temperature of boiling water. This is true of the typhoid bacillus, the cholera vibrio, the ordinary germs of blood poisoning, and most other forms.

There are three or four exceptions that should be mentioned: the bacillus of anthrax, a disease communicated from cattle or sheep to man, generally transmitted by wool or hides, and apparently very rarely if at all by food products; the bacilli of lockjaw and of gas gangrene which enter the body through a wound and not so far as known, from the stomach or intestines; and the bacillus of botulism which forms its poison outside the human body and does not as a rule appear to invade the tissue. It is the latter only, *B. botulinus*, whose presence in food heated at high temperatures has been definitely shown to cause poisoning and death. The bacilli of lockjaw, gas gangrene, and botulinus, as is well known, belong to a group of bacteria characterized by their ability to grow in the practical absence of free oxygen (far below what is needed by the ordinary bacteria). This group of anaerobes, as they are called to distinguish them from the aerobes of oxygen-needers,

is a difficult one for bacteriologists to study, and our knowledge of them is still very incomplete and unsatisfactory. It is, however, just this group of anaerobes that is of greatest significance in the canning industry. While the spores of oxygen-needing bacteria, even if they survive the heating process, are not able to multiply in the air-tight can, the spores of anaerobes do sometimes find favorable conditions for development and accordingly multiply until the contents of the can are spoiled or even, as in the case of *B. botulinus*, an intensely virulent poison is produced.

There is reason to suppose that the favorite habitat of some of the best-studied anaerobic bacteria is the intestinal tract of warm-blooded animals. The bacillus of lockjaw, for example, seems to have a special predilection for the intestinal tract of the horse, and furthermore certain individual horses harbor a much larger number of tetanus spores than do others. It has long been known that manured soils contain a high proportion of anaerobes, and the experience of the fighting armies on the long cultivated fields of Flanders and Northern France has shown us again how terrible under such conditions may be the infection of war wounds with the anaerobic bacteria of tetanus and gas gangrene. Recent observations in California on the distribution of *B. Botulinus* spores in nature, although not completed, are highly suggestive. In one instance the owner of a small vegetable garden grew string beans and canned them in the household without any spoilage over a period of eight years prior to 1918. The garden was fertilized with animal manure in 1918, and, while the beans grown that year were canned by the same method as previously, they spoiled and some jars contained the botulinus toxin.

Here we see the significance of the derivation of the word dirt from *drit*, excrement. Since all the available evidence indicates that the germs that interfere most seriously with the efficiency and safety of the canning process occur with particular abundance in the excreta of various animals, measures of sanitation in connection with canning may well be directed with special emphasis to avoiding this source of contamination.

There is good reason why all foods intended for canning should be freed so far as practicable from any particles of manured soil that may adhere to them when gathered, and why in the immediate neighborhood of a canning plant especial care should be devoted to the proper disposal of all animal excretions. This is particularly true in the case of those foods which, for one cause or another cannot be advantageously

treated at very high temperatures. When it is possible to use very high temperatures, as is done in the case of ripe olives which can be heated to 240° F. and kept at that temperature for 40 minutes without injury, both the danger of spoiling and the danger of botulinus poisoning may be entirely eliminated.

While the safeguarding of the public health and the prevention of economic loss from spoilage are and must continue to be the prime aims of sanitation in the canning industry, the question of simple cleanliness is one that cannot be wholly overlooked. Civilized man is no longer content to use a common drinking cup or dry his hands on a much-used roller towel. He likes also to sit down at a table provided with a clean table cloth and to eat his food out of spotless dishes with spoons and forks of shining silver. He has lately shown signs of interest in the cleanliness of the methods used in the preparation and transportation of his food, as well as in its serving. He does not like to see street dust blowing over loaves of unwrapped bread and he wishes to feel assured that all his food is prepared and handled under reasonably cleanly conditions, even though it may not be possible to trace any specific diseases to various untidy practices. Here is one of the great opportunities for sanitary achievement in the methods of food preservation.

There is of course a possibility of trouble here which has doubtless been foreseen by many. It is that so many and so expensive sanitary requirements may be established that the cost of food may be raised beyond a reasonable point. The absolutely necessary health requirements can be met quite simply and at moderate cost. Everything beyond this is deserving of the most careful consideration. The degree of cleanliness upon which one insists in one's everyday surroundings is determined by one's pocketbook as well as by one's preferences. Gilding the lily has an economic as well as an esthetic side.

The milk business offers a familiar example of the desirability of scrutinizing proposed sanitary requirements. We are now told by the bacteriological students of milk production that the main source of bacterial contamination lies in the utensils, and that the character of the barn and hay lofts is not so important as once supposed. It has been shown that sanitary milk of low germ content may be produced with a relatively simple and inexpensive equipment, and that elaborately costly surroundings do not increase proportionately the hygienic value

of the product. It is well therefore in each case to determine whether the advantages of a given procedure are commensurate with the expense.

I cannot let slip the opportunity of calling attention to the necessity of using bacteriological methods to determine the ways and means of sanitation. Since all the known dangers from food infection and from food spoilage are due to microbes, it is evident that a study of the life history of the microbes, of their resistance, of the physical and chemical conditions of their life, and of the places in which they are found must constitute the very essence of sanitation. For unless sanitary measures are directed towards the control and suppression of germ life they are quite without meaning. We must know where and how to strike, and we must follow in the laboratory the results of such methods as are put into effect in order to know whether they are achieving the desired end. Bacteriological studies furnish the only means of knowing where to direct our efforts. The introduction of sanitary methods without knowing whether they are precisely what is needed or whether once in operation they are reasonably effective may lead to much loss of time and energy. The fullest knowledge of the problem is desirable.

To summarize the trend of opinion on food sanitation it may be said that first of all come measures designed to promote the safety of food products. Few food industries are in a position to satisfy this requirement so completely as those engaged in food canning. Exact experiments in many laboratories have shown the degree and period of heat exposure necessary to insure the certain destruction of all dangerous bacteria. Among the other measures contributing to protection against dangerous spoilage few have so much to recommend them as the removal of particles of manured soil by thorough washing with clean water. The cleaning of all vegetables, fruits, and other foods before canning will give some protection against the introduction into the canned food, not only of germs dangerous to health, but of the germs that cause simple spoilage with its consequent economic loss. Finally, sanitary measures may well be directed to securing, in addition to the perfect safety of canned foods, a reasonable degree of cleanness so that the average consumer may be assured that at least the same amount of care and skill has been used as would be used in his own home.

THE EXTENSIONIZED FARM WOMAN

THE POINT OF VIEW OF A FARM WOMAN

ANNA GILBERT

Much interest and wide publicity was given to the report of the farm home survey conducted last spring by the United States Department of Agriculture. This was a survey of conditions in about ten thousand farm homes, and was intended as a basis upon which to plan the extension work needed by farm women.

That the condition of many farm homes is in grave need of study and help from competent workers, such as those in extension service, is beyond dispute. To us women, however, who are being extensionized, it seems as if the workers were endeavoring to look from without, in, and not from within, outward. It is hard to realize how different the farm life is from life in city homes until one has experienced both.

There is an insistent demand upon the time of the farm woman, from sunrise until long after sunset. Each morning is begun with a renewed hope to get ahead with the work and have a little free time, or "vacant" periods, but at night there is the depressing realization that little has been accomplished beside the regular and urgent routine. There are many daily duties of farm women of which city women have no conception, and also many are much harder to accomplish because of the way in which farm houses are built and used.

Farm homes, in many cases, are still in a transition stage between colonial days, when all production and preservation of food and manufacture of clothing took place within the home, and the present city conditions in which as little as possible of either is done in the home. Now, in these days of higher-priced labor and scarcity of help, the foremost question should be, "Is the work that is carried on essential to the advancement of farming as a business?" Either directly in conservation or production of farm wealth, or indirectly in conservation of the women's health and contentment on the farm, we should clearly distinguish between what is essential and what is non-essential from a business viewpoint. One must bear in mind that not only are farm women conservers of what farmers earn, but they are to a very large extent producers of wealth. Farm women are in business partnership with their husbands as is no other class of women. The work of the farm is the farm life, not part of farm life, and one comes to enjoy it and to be glad to help in making it a success.

Yet it is true that only by eliminating a part of all the various activities, now carried on in the farm home, can there be evolved a reasonable day's work with a reasonable amount of time for leisure and social life. For instance, let us take canning. During the war there was a nationwide appeal to can all surplus food. Extension experts showed us how to can everything on the farm from a carrot to a chicken. Farm women as well as city women entered into the work with admirable spirit, and conserved great quantities of produce. Is it necessary and wise now, however, for farm women to can, pickle, preserve, and dry food as in colonial days? Surplus food from the garden can always be marketed at canning factories or used on the farm for feeding poultry and stock. My neighbor last summer put up forty quart cans of red raspberries when we could sell them fresh for forty cents a quart. Allowing for shrinkage, the market value of the berries she used was about \$32. What would a doctor or a lawyer say to his wife if she went to the market and bought \$32 worth of raspberries to can?

One must become farm-minded to see the reason for many customs in farm homes. Why do the women, instead of the men, wash the cream separator? Let me ask, would it pay a business man to leave four or six horses standing and his "hired man" idle,—for hired men do not work automatically—and take one-half hour of his time to wash the separator, provided the water is heated ready in advance? In the summer, you must remember, the time of a man and team is worth from \$6 to \$10 a day. The establishing of more creameries and skimming stations will soon do away with home separating.

We wonder why the extension workers do not realize that our life scheme is entirely different from that of city women. The surveys and reports emphasize the divergence of our life from that in a city as if we should use that as our standard. There should be two separate and distinct standards, for our conditions must necessarily be different.

Extension workers often have urged us to make and remodel clothing for the family. Could they but attend the Ladies' Aid Society and see the number of homemade creations, they would go away with a devout wish that what had been done might have been left undone. The clothes problem is a large one on the farm. I know of no other one thing that takes more of my time than keeping my family mended and clothed. Very often the next season has arrived before I have prepared all around for the preceding one. I can see no well-grounded reason why farm women should make their clothing to any great extent. In

fact many reasons point to the contrary. We are too busy to study modes, styles, cuts, and materials. We do not need so many garments as city women, and we wear the better garments so seldom that they are old-fashioned before they are worn out. We need instruction in the choice of clothing in order to get colors becoming to sunburnt skins, materials that shed the dust, and styles that are simple but pleasing. Just now the home demonstration agents are teaching how to make dress forms for home sewing. If I took the time to make one, I am afraid that I should feel that I had to use it. Why not show where we could buy, through the mail or at local stores, pretty suitable things? Do you know how much we buy through the mail because of its convenience, and mostly from one firm which illustrates glaring bargains of cheap goods? Few farm women know the names of merchants who sell through the mail a better grade of goods. Without doubt farm women are not well groomed, and yet I feel that we could be if farmers received higher prices for their produce and we swing away from home dressmaking again. Does it pay to spend much time darning stockings, if the same time spent caring for the chickens will increase the egg yield?

A striking variation from city homes is the farm kitchen. Besides being the place for preparing the meals, in winter it is the laundry, the dining room, the "wash-up" room, and the drying-out room. My kitchen does not look pretty when one wall is hung with dusty old work-coats and sweaters, but who wants to put on a freezing cold coat at five o'clock in the morning? In winter, milk cans lined with frozen milk often stand around the range. One looks forward to the time when there will be a campaign for the coatless kitchen, and a drying and thawing-out room with a register. That farmhouses have not the modern conveniences of city homes is everywhere conspicuous, but the improvements in farm homes have been so rapid of late years, and the manufacture of equipment suitable for rural homes has increased so largely, that we should expect to see a noticeable advance in modernizing farm homes in the next few years.

Although we farm women need much help in solving our daily work problems, we would not exchange our farm life for that in a city. We enjoy the work, and we feel that we are a part in the accomplishment of the big agricultural production which is making for national wealth.

THE SOVEREIGN STATES AND THE FESS HOME ECONOMICS AMENDMENT

LOUISE STANLEY

Chairman, Legislative Committee, American Home Economics Association

"Does your state desire the passage of the Fess Home Economics Amendment? How will such legislation benefit your state?"

Propounding questions like these, the American Home Economics Association addressed the sovereign states of our union, asking for an expression of opinion on the value to them of the passage of this amendment to the Smith-Hughes Vocational Education Act of 1917. Hon. Simeon D. Fess of Ohio introduced the measure in the last Congress as H. R. 12078 and has reintroduced it in the Sixty-seventh Congress as H. R. 21.

The Smith-Hughes law provides for cooperation between the states and the federal government in providing education for useful employment to persons over fourteen years of age along the lines of agriculture, trades and industries, and home economics. The law provides certain amounts of federal funds to be appropriated annually for the promotion of agriculture and industrial training; it further stipulates that one-fifth of the funds allotted to any state for industrial training "may" be allotted to home economics. Hence, for the fiscal year, 1921-22, agricultural training and industrial training will each receive \$1,500,000, while home economics "may" receive \$300,000, or one-fifth of the fund appropriated for industrial training. The Fess amendment equalizes the amounts appropriated to each of the three lines of education.

Furthermore, the act of 1917 provides that the federal moneys shall be allotted to the states on the basis of *urban* population. Home economics education is governed by the same rule, notwithstanding the fact that there are homes in the country as well as in cities and towns. The Fess Amendment provides that the funds for home economics education shall be apportioned on the basis of *total* population.

Again, the existing law prescribes that home economics education shall be governed by the regulations which control industrial education. This is much like trying to run a home on the rules which govern a factory. By the provisions of the Fess Amendment, home economics education is empowered to set up its own regulations and consequently to develop along the individual lines of homemaking.

In response to a letter sent by the American Home Economics Association to state directors of vocational education, came replies of greater or less elaboration of detail, but all of these replies may be roughly classified as expressing four major reasons why the states would benefit by the passage of the Fess Home Economics Amendment.

1. We need the money. We have more applications for home economics classes than we can supply with the funds at hand.

2. The trade and industrial regulations are hampering for two reasons: the allotment of funds on the basis of urban population is unfair to the country homes; the regulations governing trade and industrial education do not fit home economics education.

3. Home economics education is an Americanization measure. It helps the foreign-born women. Homemaking training helps the poor to use their slender resources to better advantage.

4. The standard of home economics education is raised by the fact that schools receiving federal aid must measure up to a required standard. With more funds there will be more high-grade schools.

The specific statements of the different states are varied and interesting.

Missouri writes that she now has vocational home economics in forty high schools and can place it in 200 high schools if the Fess Amendment becomes a law. Florida has four schools receiving federal aid for home economics classes and at least twenty-five schools waiting to receive aid. Kentucky says that she can easily spend ten times the amount of money now received. Oregon writes that she already is spending out of state funds five times as much as the amount of federal funds received. The law obliges a state only to match the federal appropriation with state or local funds.

Kansas sees that the provisions of the Fess Bill are along the lines of "proper national economy." Kansas has forty-five schools in vocational agriculture; eleven centers and forty-seven evening classes for trade and industrial work; and only seven day schools and thirteen evening classes in home economics—all because of lack of funds.

Maryland makes a specific statement. "We have reached the limit and cannot further promote the work until additional funds are available. None of the vocational home economics departments in the various high schools of the state will be able to receive subsidy for the last quarter. There are only eight day schools receiving benefit from federal aid and yet the funds are exhausted with payments covering only three quarters. The shortage is about \$2000 on these schools besides evening work to

the extent of \$2500 in the city of Baltimore which will be compelled to go without subsidy."

North Dakota says: "The available (federal) funds for North Dakota are only \$1000 for the entire state. This is not sufficient to reimburse two schools on a 50-50 basis; we have ten applications for aid for every one which we can reimburse."

North Carolina complains of "lack of funds and trained teachers." "We could put a vocational teacher of home economics in every large type school in the state if the money was available. . . . Of course, as more money becomes available, we can train more teachers."

Arkansas sees that increased funds for home economics, will also help agriculture because experience shows that it is easier to establish schools of agriculture if schools of home economics are established in the same building.

Ohio, Michigan, West Virginia, and New York express themselves as wishing a modification in the present regulations tying up home economics with trade and industrial education.

Ohio says: "Our home economics departments are expressing a great deal of anxiety concerning the measure. We have been hampered in the home economics phase of our vocational education because home economics has been so intimately under the industrial division, and, second, because there has been such a small percentage of funds available for home economics work."

West Virginia reveals an interesting situation. Her population is divided almost equally among farmers, miners, and manufacturers, and hence is largely industrial. But the census classifies the state as agricultural, hence trade and industrial training (and consequently home economics) receives a minimum allotment. The West Virginia legislature has expressed its appreciation of vocational education by a liberal increase in appropriations for the purpose of such education.

Michigan makes her direct statement that "home economics schools cannot be conducted on the same basis that trade schools are conducted." Michigan is in process of consolidating her rural schools. She has established home economics classes in 130 schools in larger cities and towns but needs more funds to place such classes in the smaller schools.

With the passage of the Fess Amendment and the modification of the requirements which link together home economics and industrial training, New York will be able to utilize federal funds for home economics. At present the whole federal appropriation is being put into trade and industrial education.

The reports from Wyoming and New Jersey speak not only of a need of funds but of the great value of the homemaking work among the foreign-born population. Wyoming tells of the work in the mining centers where large numbers of aliens now live. "During the past two years we have made special efforts to reach some of these people with the small amount of money available, and have been very much pleased with the results secured. In these communities the girls marry at very early ages, fifteen or sixteen years, so that they have almost no opportunity to receive instruction in home economics in regular schools, and the organization of special classes for their benefit seems especially necessary."

Montana expresses her financial plight by saying, "We can assure you that vocational education, especially in home economics, is properly appreciated and that, if some financial aid is not provided for the schools throughout the state, vocational home economics will die."

Then follows a little picture out of real life.

"That type of home economics education which can be given in the day and evening classes in the public schools does much to better living conditions in the community; and at this time, when business is poor and a family often lacks funds to properly care for its needs, this kind of education is a God-send."

What Montana has expressed is undoubtedly true in every state in the Union and in every country of the world. One of the best aids to industrious, honest American citizenship is the stir of the self-respect inspired by living in well-kept homes, wearing decent clothing, eating wholesome meals. If the poorest are raised, then all other strata will be raised. Surely a little expenditure toward the achievement of such a result is economy for any nation.

The states also submitted evidence that state organizations of varied character had endorsed the bill—organizations of parents and teachers, womens clubs, and labor unions.

The national organizations which have endorsed the measure to date are: American Home Economics Association, American Association of University Women, General Federation of Women's Clubs, Land Grant College Association, National Congress of Mothers and Parent-Teacher Associations, National Council of Executive and Administrative Women in Education, Deans of Women in Colleges of the National Education Association, Vocational Section of the National Education Association, National Grange, National League of Women Voters, National Society for Vocational Education, National Woman's Christian Temperance Union.

EXPERIMENTS IN THE MAKING OF DOUGHNUTS OF LOW FAT ABSORPTION¹

MINNA C. DENTON AND LOUISE B. PRITCHETT

PART II

Some of the conclusions which we have been able to draw from the entire body of data collected in the course of over two hundred different experiments, in which many different recipes were tested, may be summarized as follows:

1. The proportion of flour used has a great effect upon the amount of fat absorbed during frying. A stiff dough absorbs less fat, other factors being equal, than does a soft dough. But if too stiff a dough is made, especially with a plain mixture low in fat and comparatively low in sugar such as our "standard doughnut," the crumb is apt to be firm and elastic like bread rather than tender and rich like cake, and for that reason the product is usually judged to be undesirable.

2. The kind of flour used, whether from hard or soft wheat, does not seem to have very much effect on the fat absorption in so far as these doughnuts may be used as indicators. Tests were made with four kinds of flour, ranging in strength from a Minnesota hard spring wheat bread flour, thoroughly aged, to a North Carolina soft wheat flour. The standard weights and proportions of all ingredients were used in all cases, and the dough was allowed to stand for one and one-half hours before being rolled to standard thickness and weight. The absorption was no greater for the doughnuts made with soft wheat flour than for those made with hard wheat flour, the average being 21 per cent in both cases. Any differences in manipulation or in moisture content, which might conceivably result from the different ways in which a cook may handle different kinds of flour, would, however, doubtless have important effects upon the fat absorption. In this connection, it may be remarked that the slight differences in absorption consistently shown between these two kinds of flour, when determining fat absorption of fried balls of dough (see JOURNAL, March, 1920, page 123), are lost in the larger range of experimental error due to the more complicated manipulation used in frying ring-shaped doughnuts.

¹ Published by permission of the Secretary of Agriculture.

This is the second part of the second report from the Experimental Kitchen Laboratory on the subject of fat absorption during frying in deep fat. See *Journal of Home Economics*, March, 1920, for first report; and June, 1921, for first part of second report.

3. But, though those differences in the condition of the gluten in "strong" and "weak" flours, which are highly significant in bread making, seem to have little effect upon the fat absorption during the frying of doughnuts, nevertheless we consider it is ordinarily the presence of gluten in the flour, or of a cooked starch paste, or of some other material capable of fusion into a coherent matrix, which makes possible the formation of a fat-resistant crust. For whenever any ingredient of the dough other than gluten or cooked starch is increased—whether it be egg, milk, water, sugar, uncooked starch, or fat—the fat absorption always rises. Yet it can not be assumed that water, for example, has a special attraction for fat. Conversely, whenever the amount of flour is increased, the fat absorption always falls. Furthermore when an equal weight of raw cornstarch was used to replace one-half of the flour in the "standard" mixture, the absorption was increased from an average of 24 per cent to 30 per cent. This increase we suppose was due in part at least to dilution of the gluten with cornstarch particles which lack cohesive properties when raw. (See also the discussion of these points in the former paper, referred to at the beginning of this article.)

However, it would be a mistake to attribute the crust-forming property entirely to the unassisted gluten proteins regardless of their physical condition. When gluten was separated from the flour by washing, then dried and ground to a coarse powder and used to replace one-half of the flour in the "standard" mixture, the absorption was increased to 40 per cent. But this dried gluten was very granular and hard and seemed to have lost its cohesive property. When soaked overnight it swelled greatly but still remained in granules which were with difficulty formed into a ball by kneading a very small portion for one hour. This instance is of course only another illustration of facts often pointed out in the literature of bread-making, viz., that the elastic and cohesive properties of gluten are dependent at least in part upon the soluble salts present which are removed by washing; and that the drying of a moist colloidal mass may produce certain irreversible changes in the physical condition of its components.

That the resistance to fat penetration is not due merely to the quantity of gluten present regardless of its physical condition was further shown by experimental evidence. In those experiments a gluten flour, manufactured for the use of diabetics, and containing by analysis 36.5 per cent gluten (N of crude gluten times 5.7) was used in place of the ordinary wheat flour in making up the standard mixture. The absorption

was 24 per cent and 25 per cent, respectively, in the two fryings made. These figures do not differ from the average absorption (when fried at once) of the standard mixture when made with an ordinary wheat flour; which averages 11.4 per cent protein (or 10.4 per cent gluten if gluten be assumed as N times 5.7).

It was noticeable that when the dried gluten and the uncooked corn-starch were added to the dough mixture neither of these materials entered into intimate connection with the remaining constituents of the dough; on the other hand, their particles remained visibly separate, to a greater or less degree. The results of the addition of *cooked* corn-starch or of a well-kneaded, cohesive mass of gluten, capable of thorough amalgamation with the dough, proved to be an entirely different proposition, and yielded opposite results.

On the whole, then, it seems fairly clear that reduction of area presented to the hot fat is the important consideration. Distinct particles or lumps of gluten present a relatively larger amount of surface. The pressure of an efficient "binder," such as a sticky gluten or starch paste in which all superficial particles are embedded, and which, therefore, presents a minimum area to the hot fat, results in decreased absorption. This will be the case, however, only if the dough be so manipulated that its surface remains smooth. Loose flour on the outer surface, or roughness due to a tendency to stick to the board, will alike cause increases in fat absorption.

4. Potatoes, when boiled and forced through a ricer and added to the mixture while still warm, are taken up much more intimately by the dough than are dried gluten granules or uncooked starch grains. The fat absorption during frying is decreased in this case, which involves the addition of cooked starch as well as of potato proteins. The average absorption for "standard" doughnuts to which 224 grams of riced potatoes are added (8 ounces cooked potatoes to about 20 ounces of flour) is 16 per cent (instead of the usual 24 per cent) when fried by the customary method, turning one or more times in the process of frying.

5. That gluten when "developed" or partially fused by kneading is more effective in resisting fat absorption than when it exists in separate particles, in a lightly mixed dough, was shown in several instances where the dough was rolled and re-rolled and obviously over-handled in the effort to standardize the weight and size of the doughnuts. The reduction was from 22 per cent, when every effort was made to avoid kneading, to 16 per cent fat absorption, when kneaded.

Yeast-raised doughnuts, duplicating the ingredients and their proportions as used in the "standard" mixture—with this exception, that yeast instead of baking powder was used, and that the manipulation was necessarily different,—showed an absorption of 7 per cent. There was an absorption of 17 per cent for the "standard" doughnut similarly treated but raised with baking powder, made up at the same time as was the yeast mixture, and allowed to stand at room temperature for three hours, as did the yeast-raised doughnuts. This extra ripening of the dough accounts for their lowered absorption (17 per cent instead of the usual 24 per cent). A part of the "standard" mixture (baking-powder dough) was kneaded to correspond to the kneading received by the yeast-raised doughnut. The absorption in this case was 10 per cent. This method of decreasing fat absorption, while very effective, has no practical significance in the making of homemade doughnuts leavened with baking powder; since the resulting product is exceedingly tough.

6. The cooking of the flour or flour and cornstarch before frying, as is done in making "queen fritters," reduces the absorption in very much the same way as does the addition of cooked potatoes to the doughnut mixture. Presumably the cooking of starch, when thorough enough to change the grains to a homogeneous paste, aids in the formation of a fat-resistant crust or matrix in somewhat similar fashion to the action of a gluten which is in good condition for fusion of its particles when wet.

"Queen fritters," even though a very soft mixture containing a very high percentage of fat, and though fried for a much longer period than are doughnuts, do not take up a large percentage of fat during frying (showing only 10 per cent to 20 per cent absorption); which is probably due in part to the fact that the cooking of the batter before frying thoroughly fuses the starch and gluten, thus enabling a fat-resistant crust to form quickly.

7. Other things being equal, increase of egg in the batter increases fat absorption. But an increase in egg generally calls for an increase in flour in doughnut mixtures, which often over balances the effect of the egg. Again, the increase in egg usually increases the volume by increasing the expansion during frying, which in turn increases fat absorption. The effect of decrease in egg can be easily noted in the less complicated "queen fritter" mixture, those fritters having two eggs added to a given weight of the cooked mush showing a consistently higher absorption (and also a larger volume) than do the one-egg fritters.

8. Allowing the dough to stand and "ripen" before frying, tends to decrease the fat absorption; especially when this procedure is continued over a number of hours or overnight. The standard mixture doughnut, allowed to stand one and one-half hours before frying, showed an average absorption of 20 per cent against the 24 per cent of those fried at once. In several cases allowing the dough to stand overnight in the refrigerator reduced the absorption considerably, e.g., from 22 per cent to 10 per cent. Standing for a short time makes the dough easier to handle and does not seem to have a bad effect upon the quality of the finished product, except in the case of the potato doughnut which loses lightness, since the potato stiffens in cooling. Standing overnight does seem to affect the lightness and volume of the finished product unfavorably in the case of almost all kinds of doughnut doughs, except possibly the very rich and soft ones. It must be remembered, however, that these doughs were all made with a single brand of tartrate baking powder. No experiments have as yet been tried on the effects of standing or ripening upon a dough made with baking powders of other types.

9. Reduction of the time of frying is one of the most important factors in reducing the fat absorption.

One method of reducing the time of frying is by raising the temperature of the fat. In one series, "standard" doughnuts fried for 3 minutes at 185°C. gave an average absorption of 22 per cent fat; while doughnuts from the same mixture fried at 205°C. for 2 minutes absorbed 15 per cent fat. The high temperature made the "standard" mixture excessively brown; but when a doughnut mixture was made in which the sugar was reduced one-half and the flour reduced 45 grams, all other ingredients remaining the same as in the "standard" mixture, the high temperature did not cause undue browning. Frying at 210°C. did, however, seem to toughen this two-egg doughnut. Doughnuts of this same series fried at 185°C. for 3 minutes absorbed 18 per cent of fat, while those of the same mixture fried for 2 minutes at 210°C. absorbed 11 per cent of fat.

Another method of reducing the time of frying is to submerge the doughnut during the frying period. This method is used by some commercial bakeries where doughnuts are made in large quantities, the doughnuts being forced under the surface of the fat by means of a wire screen sinker. In the Experimental Kitchen a device similar in principle, consisting of a round disc of galvanized wire netting with a heavy wire plunger attached to the center, was used. An ordinary wire frying

basket with a bail, if slightly smaller than the frying kettle, could be used in the same way to force the doughnuts under the surface of the fat as soon as they begin to rise to the surface, and keep them submerged.

"Standard" doughnuts from a batch of dough that showed 19 per cent absorption, when the doughnuts were allowed to float, showed only 13 per cent when submerged.

"Standard potato" doughnuts, when fried by submerging for one and one-half minutes at 185°C., absorbed 12 per cent of fat; while doughnuts of the same mixture fried at the same temperature for three minutes, floating in fat and turned once or twice during frying, absorbed 15 per cent of fat. (See also paragraph 3 under Practical Suggestions.)

10. Since all parts of the surface of the doughnuts are equally exposed to the hot fat when kept completely submerged, the doughnuts expand evenly, showing much less tendency to crack than when allowed to float during the frying process. The doughnuts fried by this method, if made from a soft, well-mixed dough with a smooth surface, are usually glossy and have a soft, tender crust of uniform color, so that they are unusually attractive in appearance. However, a large or thick doughnut should not be kept submerged while frying, since the time could not be shortened sufficiently, in this case, to reduce the fat absorption. Submergence without reduction of time of frying would, of course, only increase the fat absorption, since there is an increased surface exposed to the action of the hot fat, during submergence.

PRACTICAL SUGGESTIONS FOR THE HOME FRYING OF DOUGHNUTS OF LOW FAT ABSORPTION

1. Reduction of the proportions of fat, sugar, and egg in the doughnut mixture decreases the amount of fat absorbed, provided the amount of flour used is not too greatly decreased at the same time. A plain doughnut mixture, such as the "standard" recipe given in Part I, if properly fried, makes a doughnut which is very good the day it is made, but which becomes rather compact and bread-like upon standing.

2. Yeast-raised doughnuts, made by the "standard" recipe but with the substitution of one cake of compressed yeast for the baking powder, show a very low absorption of fat. They are quite different from the ordinary baking-powder doughnuts, but are often well liked.

3. The following recipe has been repeatedly tested in the Experimental Kitchen and found very satisfactory. The doughnuts had a crisp tender crust and a light fluffy crumb. When they were fried submerged in the fat, absorption was found to be low. The keeping qualities

of this doughnut are exceptionally good, as it does not become hard and compact upon standing over night. As will be observed, it is a richer mixture than the "standard potato" doughnut.

A good recipe for potato doughnuts

<i>Ingredients</i>	<i>By measure</i>	<i>By weight</i>
Sugar.....	1½ cups	300 grams
Butter.....	2 tablespoons	24 "
Eggs.....	2 eggs	96 "
Hot riced potatoes.....	1 cup	224 "
Milk.....	¾ cup	163 "
Flour.....	5.3 cups	600 "
Baking powder.....	4 tablespoons	40 "
Salt.....	1 teaspoon	5 "
Cinnamon.....	1 teaspoon	2 "
Nutmeg.....	½ teaspoon	1½ "

Doughnuts of this mixture, rolled ¼ inch thick and cut with 1½ inch center hole, then fried for one and one-half minutes submerged in fat at 185°C., absorbed only from 15 to 17 per cent fat; while if allowed to float for three minutes, the mixture absorbs as high as 30 per cent of fat, in some tests.

4. A temperature of 185°C. was found to be very satisfactory for frying doughnuts. Doughnuts of average standard size and weight (about 32 grams of dough), having a center hole 1½ inches in diameter, require about 3 minutes to fry at this temperature if allowed to float, and about one and one-half minutes if submerged in the hot fat during frying.

5. For the best quality of doughnuts the dough should be of fine texture but rather soft and smooth, and handled as little as possible.

6. The time of frying has as much influence as any one factor in controlling fat absorption. Frying at too low a temperature and thus requiring a longer period of cooking, frying doughnuts that are too thick and require a long time to thoroughly cook through, or leaving the doughnut in the fat too long, due to poor judgment on the part of the cook as to when the product is done, all tend to produce a doughnut unnecessarily high in fat. For the woman who fries doughnuts often, some simple device, such as a frying basket of appropriate size, by means of which she can keep her doughnuts completely submerged during frying, may prove to be a worth while investment; for by such a device she can reduce the time of frying practically one-half and the fat absorption considerably, and produce a doughnut of superior quality and appearance. However, this process cannot be recommended for large or thick doughnuts or for those which tend to "swell shut" in cooking.

HOUSEKEEPING UNDER CHARLES II

In the library at the headquarters of the Society of Friends at Bishopsgate, there is now preserved an interesting manuscript, rescued from the hands of a grocer before he had been able to use more than a few pages of it for waste paper. This is the household account book of Sarah Fell, one of the step-daughters of the famous Quaker, George Fox. The book covers the period from 1673 to 1678, and a reprint has been published by the Cambridge University Press.

Shopping was done at Ulverston and Dalton on weekly market days, but much had to be brought from Lancaster, twenty miles away across treacherous river estuaries, and horsed messengers were constantly being sent to Kendal and Kirby Lonsdale. Brown sugar, oranges, and gloves were received from London. Purchases of beeswax for candlewick indicate how the house was lighted. It was largely heated by local peat. Cost of carriage made coal prohibitive; as much as £1 2s. 5d. was paid for 3 qrs., and again £1 8s. for 4 qrs.—money having four or five times its depreciated value of today. The Quaker household had wine, ale, and brandy, and medicinal aids included cinnamon waters, juniper berries, saffron, and “treacle” bleeding leeches. There is an entry concerning tobacco pipes for Sister Susannah.

Sarah Fell and her sisters did not restrict themselves to sober grey; green, black, and white ribbons were purchased to lighten the Quaker dress; stockings were dyed sea-green and sky colour, and a petticoat, dove colour; Sarah had her muffs, Sister Rachael her whisk, or neckerchief, and Susannah was gratified by a little pocket looking-glass.

It is impossible to deduce, from wages paid alone, the real position of domestic and farm helps. Anne Standis's wage for a year was £1 17s. 6d., but she restored 8s. for a silver spoon lost, and 6d. for a pot broken. What modern lady help, one wonders, would give up nearly three months' wage for a lost spoon?—but times have changed. In the hayfield women received only a penny a day each; boys harrowing for thirty days had only a halfpenny each day. The marketing of the dairy produce of Swarthmoor appears to have been entrusted wholly to a woman servant, Elin Pollard, whose wage was £2 a year. Wage rates were fixed by the justices at Quarter Sessions, and it was a terrible offence to ask for more, though, as servants then mostly lived in or enjoyed estate cottages, there were many small ameliorations of their lot. Meat and drink were given to all day workers, evidently to greater value than the penny or two they received in coins.—*The Table.*

FOR THE HOMEMAKER

THE RESPONSIBILITY OF THE CONSUMER FOR FOOD STANDARDS AND PRICES

AGNES FAY MORGAN

(Concluded)¹

Bleaching of flour. Another case, equally striking, is the famous bleached flour controversy. Of late years a demand for a very white wheat flour has come from the consumer. The millers responded with a refined flour bleached to an unnatural degree of whiteness by means of a poisonous gas, nitrogen peroxide. Certain minute quantities of the resulting nitrites were shown to be retained in the finished product, to the supposed detriment of the health of the consumer. The nitrite process of bleaching was then forbidden by various state laws. A Minnesota mill carried the matter to the Supreme Court of the United States in 1914, and there obtained a decision that the mere presence of nitrites was not sufficient for condemnation of a shipment of flour, but that the presence of the poisonous substance *in sufficient amounts* to prove deleterious to the health of those eating it must be proved. This decision plainly puts the burden of proof upon the food official, demands demonstrations by expensive experiment, and on the whole reverses a good deal of the progress that had been made in the matter of preservative regulation. This same decision may be applied no doubt to the dried fruit matter, to the use of saccharin and dyes, and to many other mooted questions. The point to be made here, however, is that a cheap grade of flour artificially bleached to the appearance of a high grade article might under the law be foisted on the public at the discretion of the manufacturer. If such fraud is detected it may be punished, of course, but detection is difficult. The consumer asks for this white flour and gets it. All this is in spite of the fact that those grades of flour which retain more of the exterior coverings of the wheat grain and so have a darker color are usually thought to be of considerably more value in a nutritive sense than the superrefined flours, since greater quantities of ash and vitamins are retained in the former.

¹ The first installment of this article appeared in May.

War bread. Our twelve months' experience with war bread seems to have pointed the lesson of the value of flours less highly milled than those formerly thought palatable. Certainly the questions of bran or no bran, 56 per cent or 80 per cent milling of the wheat berry, were thoroughly thrashed out, authorities being aligned in awesome array on both sides. The United States Food Administration adopted a conservative position, eventually ruling that the flour sold should contain 74 per cent of the wheat. This meant a more uniform and slightly higher extraction than had been the American standard, but produced a fairly white flour which, in combination with flour from other grains, especially rice and barley, made an acceptable war bread.

Artificial coloring matter. The question of the use of coloring matter in foods is only nominally concerned with the public health. Certain aniline dyes are allowed by the federal law, as well as the law of California, to be used in foodstuffs, provided their purity is certified to, and their presence is confessed on the label. Natural or vegetable colors are allowed also, but greening by copper of canned vegetables and pickles has been forbidden. An actually poisonous substance is of course involved here. Ketchup, maraschino cherries, oleomargarine, butter, cheese, noodles, macaroni and other alimentary pastes, are the foods most frequently colored. A recent decision forbids the coloring of macaroni, noodles, and other alimentary pastes because of the alleged fraud involved. Highly colored butter, oleomargarine, and cheese are demanded by the consumer, and so in spite of the tax on colored margarine, for instance, artificial addition of color to these foods is practiced and allowed.

Artificial flavors. Saccharin. Synthetic or artificial flavors are used chiefly in extracts and soft drinks and may be said to have little hygienic significance except for the destruction of natural flavor in foods, and the miseducation of the taste of the consumer. The use of saccharin, a coal tar product of no food value, but 550 times sweeter than cane sugar, has been a mooted question. The federal law and most state laws forbid its use as a fraud, and as deleterious to the public health. It may be used, however, for medicinal purposes. A few years ago the Supreme Court of Missouri ruled that it might be used, a decision based probably on the bleached flour ruling. The substitution of saccharin for sugar is probably to be considered dangerous chiefly because of the false food value so enforced, since the sweet taste of sugar without the food value of the sugar may cheat the consumer into a feeling of satiety without any real alimentation.

The constant use of saccharin by large numbers of people in Europe during the war, however, seems to have shown that even in fairly large amounts the drug has no detectable deleterious effect. Fortunately its unpleasant aftertaste acts as a safety stop on its excessive use, so that maximum doses have probably seldom been taken.

Cost of pure food laws. In molding public opinion on this matter of the use of colors and preservatives, we must remember the economic as well as the hygienic side. Waste of food that is edible should be avoided, and the crusaders' spirit of reform at any cost must be restrained in the interest of those below the line of choice in the matter of food. Dr. Wiley's campaign against every kind of sophistication was a splendid achievement, for which we should be duly appreciative, but his white heat of fervor in the quest of the holy grail of the absolutely pure food product has cost the consumer something. Sane conservation of all safe edible food should be the slogan of the modern food official.

The examination of food handlers for communicable diseases. The third hygienic aspect of the food laws, that concerned with the prevention of the spread of disease, is one which has unfortunately been much neglected until recently. Many states and most municipalities have regulations as to the employment of persons suffering from communicable diseases in factories, stores, or restaurants handling foods. Such regulations have been practically a dead letter, chiefly because of the lack of funds to enforce them. The public has been apathetic on this point, a matter presumably of more vital importance than the comparatively insignificant question of preservatives. The spread of syphilis, tuberculosis, and typhoid fever is peculiarly concerned, since persons suffering with these diseases may be up and about, engaged in their daily tasks, for a considerable length of time. The matter of typhoid carriers is a serious menace. A case at Hanford, California, was reported some years ago, in which ninety-seven persons had contracted typhoid fever from eating food prepared by a woman who was a typhoid carrier, though she had never exhibited the symptoms of the disease herself, but had merely nursed her daughter through an attack thirty-five years before.

The state sanitary code of California has a section stating that persons suffering from communicable diseases shall not be employed where foods are handled. Small provision is made for its enforcement, and it is safe to assume that as a state measure, particularly in rural communities, it is a dead letter. Municipal conditions are better, but public opinion

in this matter is deplorably lax. The ethics of the medical profession add to the difficulties, since reporting infectious disease has not yet been incorporated completely into that code. In the matter of syphilis and venereal diseases in general the physician's inherited instinct to protect his patient may work against the public good. Until public opinion demands legislation, and more particularly appropriations for enforcement of regulations requiring health certificates for all his employees from every food manufacturer and retailer, this unfortunate condition will continue. The instinct for decency as well as the need for protection against possible infection is concerned in this as in all questions pertaining to cleanliness in foods.

The fourth hygienic aspect is one only contemplated so far by the laws. According to Dr. Alsberg, chief of the Bureau of Chemistry of the United States Department of Agriculture, and successor to Dr. Wiley, the food laws provide the following protection to the consumer:

(1) Nothing injurious, poisonous, or deleterious to health must be added to food.

(2) There must be no imposition, false pretense, or fraud perpetrated on the consumer.

(3) No sound wholesome food or food ingredients must be kept from the consumer.

"Devitalized foods" and deficiency diseases. This last point covers the matter of the devitalization, denaturation, or "robbing" of foods. A case specifically covered by the federal law is that of "polished rice." Recent investigations have shown that certain classes of people in Asia and the Philippines entirely dependent on rice for food exhibit many cases of a peculiar disease called beri-beri. This disease, similar in character to neuritis, has been shown to be the result of deficient nutrition, following the use of polished rice as an almost exclusive food. Polished rice is rice from which the outer red husks or pericarp have been removed, and the inner grain coated or not, as the case may be, with talcum and glucose. When unpolished rice, fresh meat, fresh milk, or fresh vegetables were fed to these patients the disease disappeared. The substance usually called vitamine, removed in the rice polishing, is present in exceedingly small amounts, but seems to be indispensable for the maintenance of health. The matter of stringent legislation as to the sale of such polished rice in this country cannot be considered a vital issue, for probably very few persons in the United States subsist on rice alone. The number that might be subject to the deficiency diseases resulting from lack of the rice vitamins is therefore very small. Over seventy of

the crew of one of the German cruisers interned at Norfolk, Virginia, in 1915, exhibited the disease of beri-beri, probably because of their subsistence for such a long time on canned and on salt foods during their dodge around the world after war was declared.

Pellagra. Another disease, now found frequently in the south of this country and said to be spreading to the north, is pellagra. Recent investigations by the United States Department of Public Health have shown that this, too, is probably a disease of diet deficiency, the result of the continued use of musty cereals, salt pork, syrups, and cheap canned foods.

Regulation of canning, milling, and like processes of food preparation seems to be indicated as an additional factor of safety for the public health, especially for the promotion of proper growth of children. Such regulation is already under consideration by food officials but the whole matter is in the melting pot, the findings being as yet contradictory and incomplete. Boiled milk comes under the searchlight in this same respect, since scurvy and rickets in children are known to be disturbances in nutrition, even though they have not been shown conclusively to be diseases resulting from deficiency in diet.

War scurvy. Many cases of scurvy among both the military and civilian populations of Europe were reported during the war, and ascribed to the unsatisfactory character of the food supply. These cases are recorded as having occurred among French, Italian, German, and Russian troops, British troops in Macedonia, orphaned children in Vienna and Prague, and middle-aged civilians in Glasgow. The total number of sufferers is probably much greater than the sum of those which happen to have been published in the medical journals.

The prevalence of scurvy in the British navy, as well as in the British army in the East, was such that the research staff of the Lister Institute in London has devoted a large part of its energy for several years to investigations into the cause and prevention of the disease. These investigators, most of them women, have shown that scurvy is probably a true deficiency disease, caused by the absence from the diet of a definite vitamine, which has been called "water-soluble C." This substance is present in varying amounts in fresh fruits and vegetables, germs of grains and of other foods, and may be impaired or destroyed by cooking or canning. Californians are interested in the fact that citrus fruits, particularly lemons and oranges, are especially rich in water-soluble C, even though prunes and plums are probably largely lacking in this respect. Fresh milk and lean meat apparently are not well supplied with this sub-

stance, and must therefore be supplemented by vegetables and fruits in order to provide a safe diet. Generalizations on this subject are not yet entirely justified, however, for new data are constantly being brought forward.

"Fat-soluble vitamine." A word should be added concerning the existence and the function of a third vitamine known as the fat-soluble vitamine, since it is usually found in the fat fraction of foods. This substance apparently is indispensable for the growth of the young, and its absence from the diet has of late been associated with the appearance of rickets. It is plain that fats of vegetable origin contain little or none of this accessory substance, but that milk fat, cod liver oil, egg yolk fat, are rich in it. Some quantity is found also in beef suet and in mutton fat (although not in lard) and in green leafy vegetables. The provision of the comparatively expensive foods which carry this substance is a serious problem at present in Europe. Even in England the prevalence of rickets and other forms of malnutrition among the children of the poor must be contemplated with alarm.

Certain butter substitutes such as the nut butters are entirely lacking in the fat-soluble vitamine. while others made partly of milk fat and beef oleo oil contain a fair proportion of it. The choice for the diet of children is obviously in favor of the latter. Yet the manufacturers of nut butter are able actually to increase the sale of their product by proudly proclaiming it to be "free from animal fats."

The economic aspects of the food laws. In addition to the need for protection of the public health there has developed the very real problem of protection against economic fraud in foods and drugs. Such frauds may involve deception either in quantity or in quality of articles offered for sale. For the prevention of gross fraud in the former matter there are of course duly appointed county or city sealers of weights and measures, who inspect the weighing and measuring of foods and other commodities sold in bulk.

The information on the label. Until recent years there was no protection against variations in goods sold under the manufacturer's seal in proprietary packages. Since 1916, however, following the enforcement of the famous Food Inspection Decision 154, all containers, of any kind, of foods sold either at wholesale or retail, must declare in conspicuous lettering the net weight, measure, or count, of the contents in terms of the largest unit of such weight or measure contained therein. In addition proprietary food labels must carry the name of manufacturer and

place of manufacture, and, if mixtures or compounds, a statement to that effect. As a result of the older legislation artificial coloring, flavoring, per cent of potent drugs, amount of allowed preservative, must also be plainly printed on the label.

There can be no doubt that enforcement of these reasonable rules about the labelling of food packages has had an incalculable value in raising the standard of foodstuffs offered in the market. It has likewise aided in raising the cost of such foodstuffs, largely by eliminating much of the doubtful but stimulating competition of former times. The mushroom type of manufacture is displaced, as a result of these requirements, by the highly organized, efficient, and profitable modern plants. More uniform and constantly better products are offered to the public at a constantly rising price.

Read the label. A rather discouraging feature of label regulation is the consistency with which the consumer who has demanded protection and is apparently eager to pay for it refuses to take advantage of it by reading the label. A clever baking powder "expert" stated not long ago that she had asked dozens of audiences of club women what the ingredients of their favorite baking powders were, and found usually only one or two women out of a hundred who even knew that these ingredients were declared on the label of the can. The full value of the higher price paid for better foods cannot be realized, of course, until the new generation of intelligent purchasers discriminates between that which is allowable legally and that which is the best and the most that can be produced for the price. The necessary information is on the label.

Misleading advertising. In spite of the very commendable progress that has been made by the advertising trade or profession toward truthfulness and dependableness in published statements, there remains considerable room for improvement. The strict control of claims on the label of package goods has resulted in the wide use, by certain interests, of booklets, billboards, demonstrators, and other means of advertising separate from the label. In some cases amusing differences between claims on the label and in the accompanying leaflet were noted. Baking powders, because of keen competition for a business with high profits, and breakfast foods are among the more easily recalled instances.

A most potent influence in the development of high prices for food has been the campaign of certain advertisers for the education of the consumer to the belief in the exceptional nutritive, sanitary, and gustatory merit of certain high priced products. Examples of slogans used in

these campaigns will occur to the reader at once. "Heart of corn," "food shot from guns," "sliced bacon," "beans with a college education," are a few of the illogical but apparently effective descriptions used. All these products are sold in packages, are dependable, acceptable, often guaranteed goods, but cost from 50 to 500 per cent more than their humbler equally nutritious competitors sold in bulk.

No thoughtful person would advocate the return to the unstandardized and unreliable *caveat emptor* condition which prevailed before the day of the food official and the national advertiser, but it should be clearly recognized that, in some degree as a result of such advertising, the high cost of living may be written cost of high living. With a large proportion of the population thus constantly admonished to buy only the certified package, and acting on that advice regardless of cost, little progress toward downward trend of prices of food can be expected. The writer offers no solution other than popular education for the problem which is thus presented, for no other is possible. It is desired simply to bring this angle of vision upon rising food prices to the attention of the reader.

The possibility of putting on the market clean reliable foods in bulk has been demonstrated, but the profit in such business is apt to be too widely and evenly distributed among producers and dealers to offer as great allurements to business as does package monopoly. We see of late even oranges, apples, and nuts put up in trade-marked wrappers and nationally advertised by the producers' associations. The foods thus marketed are no better than similar fruits and nuts commanding the same or a lower price without a trade-mark, but they present the advantage to the consumer of insured uniformity. For the producer they form the basis of a specialized and carefully fostered demand upon which may be constructed a higher level of retail prices.

The disadvantage of such education of taste to those economically below the level of choice is evident. Since the demand for dependable lower priced foods is decreased in favor of *de luxe* articles, less competition and production in the former lines ensue, and their price is gradually levelled up to that of the advertised product.

A wider dissemination of knowledge of the nutritive value of foods might well be undertaken to combat the miseducation in such matters which the food advertisers have more or less consciously brought about. If it became generally understood that only a more pleasing flavor can be bought with the higher price of prepared cereals, olive oil, trade-

marked fruit, and similar products, and that even this is sometimes only the psychological reaction of taste to the repeated statement of the advertiser, a more rational balance between supply and demand might result. Nature produces both perfect foods and culls in some degree, in spite of the most enlightened agriculture, but the modern American consumer refuses to make use of either perfect product or cull until an astute manufacturer has given them a fancy name and a package habitation.

Ready cooked foods. Another aspect of the increasing use of package goods is the tendency of the housewife as well as the institution steward to purchase more and more food in ready-to-serve form. Steam cooked cereals, canned vegetables and fruits, canned soups, can be obtained only in trade-marked packages. Hominy, cabbage, sauerkraut, and apple sauce are among the recent additions to the canned goods which continue the upward trend of price for the humblest foods. The can, the labor of canning, and the canner's profit are included in the higher price, but the consumer has less work to do in preparing the food for the table. Aside from all question as to effect upon nutrition of the increasing use of autoclaved foods, the effect of this demand upon food prices should be noted. The tendency toward preparation of food for the table in large quantity by manufacturing concerns rather than in the individual kitchen may be considered established, and on the whole is to be commended and encouraged. But this demand adds its bit to the rising cost of foods.

False advertising. The most vicious examples of false advertising are to be found not among claims made for foods but in support of patent medicines. This unprincipled exploitation of ignorance and misery which was rampant in America twenty years ago is now somewhat curbed by the vigorous action of the council of chemistry and pharmacy of the American Medical Association. The laboratory maintained by this association for the purpose of analyzing the compounds and exposing the fraudulent claims of makers of medicine has functioned chiefly by education of the medical profession. Label legislation has aided in this matter, but we have still a vast flood of dishonest and tragically amusing advertising of patent medicine. The better class of newspapers and magazines refuse to print the worst of it, but somehow much of it still gets before the eye of the gullible public.

Protection against this kind of imposition is costly, and not yet available. As in the case of foods the legitimate products left on the market must bear the cost of the whole proceeding. Fortunately, however, in this case no irreducible minimum must be consumed.

The "water-glass test." It is interesting to note the vigorous manner in which unfair advertising methods are combated by the manufacturer or dealers whose business may be hurt by such methods. The long fought egg albumen case among the baking powders comes to mind in this connection. Certain baking powder concerns introduced a minute amount of dried egg white into their powder, then used the prolonged foaming with water, the "water-glass" test, which is thus secured, in their claim to superior leavening power. The claim was of course spurious, but could be supported by visual demonstration to the conviction of the housewife. Competitors of these firms immediately launched widespread and tremendously costly advertising and litigation against the device, with virtuous indignation over the trick as the main motif. Similar tricks are today constantly before the eyes of the public with no impartial tribunal to prevent them or even to point them out.

Contrary to our experience in practically all other movements toward legal control of food and drug sales, we might find that a vigorous enforcement of a sane advertising censorship might help to reduce instead of increase food prices. The opposition of the press to such a move has so far made its accomplishment impossible. The slow process of education of all the people, considerably aided by the teaching of domestic science in the schools, might be supplemented advantageously by careful control of the daily printed directors of thought. The consumer's demand for protection must be irresistible before the involved and scattered interests and ethics of the advertising business can be controlled.

The consumer, through his government representatives and his own purchasing choice, has in the last fifteen years demanded better foods, conforming to uniform standards, put up in pleasing packages, as far as possible ready to eat, and of the brand most widely advertised at the moment. He has insisted that the weight be declared on the label, that the smallest amount possible of preservatives or artificial flavorings and colorings be used, that "substitutes" be avoided, and that only the super-product of the farm be brought to his door. He has cared a little as to the bacterial history of employees in food concerns, and has taken heed of the claims of the pseudo "food expert" with an axe to grind. In consequence of these demands a cleaner, more appetizing, if no more nutritious food supply is in our markets, and its price is rapidly passing beyond our means.

EDITORIAL

"Successful Family Life on a Moderate Income,"¹ written by so scientific a student of social economics as Mrs. Mary Hinman Abel, is an excellent contribution to our home economics literature.

We have needed such a book for a long time. We need more and more of them for the homemakers, both men and women, who are diligently seeking definite aid in their homemaking problems. This is not a book of mere directions. It is that much greater thing, an inspiring, helpful discussion of the meaning of family life and the basis upon which it rests as a successful enterprise.

The opening paragraph states the problem in the questions propounded, which are discussed to helpful determination and suggestions later on. "What is success and how are the great number of families, living on the average income in this country, to win it? How are they to obtain development and happiness? Are any principles to be laid down, and examples cited? Are 'disruptive tendencies' as great as has been claimed?"

Mrs. Abel has written far more than a text book although the form of analysis of each chapter by questions admirably fits it for this. She has presented an exposition of the ultimate purpose of homemaking while giving practical aid to the solution of its economic problems. The right kind of citizens can come only from the right kind of homes, and no business is rightly conducted until it is economically sound. There must be a full comprehension of this truth by all the teachers of home economics. They must first see the purpose and meaning of family life before they can properly present the means for its accomplishment. In no other book which has come to my knowledge have these things been so well presented or so adequately discussed.

It was a fortunate day for the home economics movement when it took up the spending of the family money as a serious study. It vitalizes all the processes of daily life and is found to have deep root in ethics as well as economics. Men acquire knowledge, skill, power over material things and yet go to pieces because of lack of purpose. The eye must be fixed on the goal. To know what you want is to know very soon what you cannot have, and with a clear aim in view, miracles are wrought out of unpromising

¹ See also book note, page 332.

beginnings; new ideas of thrift are adopted, there is new stimulus to earn in outside ways, the judgment as to value grows apace. The difference soon appears between mere wishing for a good and that passionate desire for it which moves to sacrifice for its sake. The best system of ethics is mere theory until it comes to living it out, for it may be truly said that sacrifice is the measure of devotion; we really desire a thing only so far as we are willing to give up other things for it. (Chapter 16, page 90.)

The chapters devoted to the family budget naturally attract one whose belief is that home economics teaching, whether in class room, on lecture platform, or in magazine articles, should to a degree center about this basic plan. They are concise, helpful, and admirable.

Between now and the next census-taking, women must accomplish at least one definite task. This is the establishment of the business of home-making, or the woman's part in it, as a gainful occupation. Until this is done the economics of family life proceed from a wrong premise.

Women who are not receiving wages from sources outside the home are all classed as unoccupied although among them are found the housewives who are true producers of wealth in the newer sense; that is, they create utilities that satisfy human needs. Out of raw materials they produce the finished product, not only in food and clothing but in immaterial forms that make up the very character and atmosphere of home. They are the makers of the intimate things of life. (Chapter 6, page 43.)

No other portions of Mrs. Abel's book are better presented than those which deal with "The Housewife's Contribution as Buyer and Manager," and "The Mother's Contribution to her Children."

Two generations ago when there was so little ready made, all departments of practical life had to be conquered in the home. By and through the industries carried on for the support of the family, as in the farm home, a school of life was in progress, and the precious inheritance of standards and customs, the very foundations of national character, was being formed and handed on. The working mother of our moderate income family today is doing actual housework and she must continue to do it until conditions radically change, for it is at present, as we have seen, the most feasible way of making her necessary contribution to the income; and it is this fact which gives her a substantial advantage in child training which she must learn to use. (Chapter 10, page 111.)

We have long wanted this book, and all exponents of true home economics theory and practice will rejoice that Mrs. Richards' warm friend and true follower has been the one to give it to us.

HELEN LOUISE JOHNSON.

OPEN FORUM

An Answer to "The Extensionized Farm Woman." Having read the article by Mrs. Gilbert on the "Extensionized Farm Woman" I desire to commend it for the accuracy of knowledge displayed concerning farm home conditions and the sincere desire manifested in it toward everything that will improve such conditions and at the same time lighten the burdens of the housewife. It carries with it many strong arguments for the home extension service and was undoubtedly intended to be constructive and helpful in this direction.

Feeling that the few critical notes sounded in her article are based upon misunderstanding or misapprehension of the real attitude of the home extension workers, as I know it from observations in the field as well as from personal acquaintance with both state and national leaders, and from conferences with them relating to the whole home extension program, I venture to point out where, in my opinion, Mrs. Gilbert incorrectly interprets the aims and purposes of this fine new aid to home building.

In the first place, the statement that the city home viewpoint is the basis of judgment of rural homes is not in accord with the attitude of home extension workers as I have seen it. The whole program is set up and the whole force is organized with the rural home viewpoint in mind and a large percentage of the force have come from country homes. This is the fundamental idea in building up the extension service. It is comparatively new and some workers may have gone out who do not correctly interpret country life, but they are the exception rather than the rule and should not be made the basis of any expressed or implied criticism of the whole force.

My impression of home extension agents is that their work fits most admirably into Mrs. Gilbert's idea of the home as a "business institution." The earlier idea of the home extension worker as a teacher of frills, furbelows, fancy dishes, and fol-de-rols is put to shame by the intensely practical and helpful program of the present working force. Short cuts in housework, time and labor-saving devices, food values, health hints, kitchen surveys, care of sick are illustrative of the work they now do. Surely this all points to "business." Assuredly this conforms to the modern ideas of efficiency. In this same connection one of the finest pieces of work done is the carrying of original ideas and plans from one resourceful housewife to another. I do not think, in

view of the actual work done by a large percentage of extension workers, that Mrs. Gilbert's implication that they emphasize non-essentials is entirely fair.

In passing it might be timely to say that the great "business" of the home is not the accumulation of dollars or property as an end. Woman's great business is not primarily to increase income but rather is to maintain a comfortable and happy home in which children are trained to become useful citizens.

Canning all surplus food was a war time measure urged in the interest of conservation. Quantity was the war time slogan. The methods developed are as timely today as in war times and mistakes in quantity should not be laid up against extension agents. A variety of fresh meats is liable to be lacking on the farmer's table in the summer and a variety of vegetables also lacking in the winter unless canned in the proper season. Preparing these for the table in quantities involves a saving of time and fuel, and enables one to meet sudden emergencies in the preparation of meals.

In urging that women buy more clothing ready made Mrs. Gilbert is flying in the face of the testimony of experts that no family of less than \$1500 annual income can afford to hire sewing done. The farm labor income is far below the figure as an average. It is apparent therefore that the home sewing will continue for many years in the larger number of American homes and every aid to better selection of colors and materials and every device which will enable homemakers to become more skillful and expeditious in such tasks is practical in the truest sense.

One of our leading statesmen has recently said that the small farm home under ideal conditions is the safest and best unit of our civilization. We join heartily with Mrs. Gilbert in urging comforts and conveniences in farm homes, and income from the business of farming which will make such comforts possible. We believe that the home demonstration agents are a great force in searching out and keeping continuously before our people the things that are vital in working out such a program and we believe every farm woman should support the new movement heartily by words of commendation, constructive criticism, and suggestions for improvement.

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BOOKS AND LITERATURE

American Red Cross Course in Food Selection. Headquarters, American Red Cross. Washington, D. C. 1921, pp. 100. Fifty cents.

The lessons are prepared primarily for Red Cross classes in food selection, but can be used by all women who are interested in the problem of feeding the family. The course embraces a study of foods and the factors that must be considered in selecting an adequate diet. It aims to give a knowledge of foods and food groups which will enable the housekeeper to modify her selection of food to suit the needs of the individual members of the family. The lessons include quite full discussions of food and its use in the body, and the more important food materials, such as milk, vegetables, fruits, and cereals. One lesson gives a convenient method for the calculation of the dietary; another discusses feeding in special cases, including feeding in illness. The subjects of infant feeding and food for the child from two to sixteen years of age receive considerable attention.

As the lessons are intended for use in Red Cross classes, it is expected that the instructor will contribute much to their value. At the same time the person working alone will be able to comprehend most of the subject matter, and to review each lesson in the light of the topics suggested for class discussion.

The home work assigned in connection with each lesson will be helpful to any housekeeper who is of an investigative turn of mind. Detailed suggestions for demonstrations, and valuable food tables are contained in an appendix. Supplementary to the lists of bulletins given in connection with the lessons, there is a brief annotated bibliography of books of reference.

In the foreword acknowledgment and thanks are gratefully extended to the Office

of Home Economics, U. S. Department of Agriculture, for its generous and untiring coöperation in the preparation of this pamphlet; to Mabel T. Wellman, Head of Department of Home Economics, Indiana University, to Mrs. Alice P. Norton, Editor of JOURNAL OF HOME ECONOMICS, to Dr. Dorothy Reed Mendenhall, Children's Bureau, authors of the lessons of which these are an elaboration; to Dr. Ruth Wheeler, Head of the Department of Home Economics, Goucher College, for helpful suggestions and criticisms.

The Community Health Problem. By ATHEL C. BURNHAM, M.D. New York: The Macmillan Co., 1920, pp. 149.

Beginners in public health work will be grateful to Dr. Burnham for this brief outline of the public health problem. The author uses the term "community" to include the entire nation and does not confine it to a particular neighborhood limited in area and composed of a fairly homogeneous population. "Community health schemes" as we now understand them, such as the Cincinnati Social Unit experiment and the Framingham demonstration, are indeed briefly discussed, but more general types of health service, such as public health nursing, the organization of federal, state, and municipal health departments, industrial medicine, school medical inspection, and, finally, health insurance and socialized medicine, receive most attention.

To attempt to cover so wide a field in so small a volume has naturally resulted in serious omissions. The discussion of parental and child welfare work, which because of its preventive nature now stands in the forefront of public health work, is particularly scant. The only reference to

defective nutrition is a brief discussion of the Dunfermline scale of grading nutrition and the number of children found in each grade in New York City. The rapid development of nutrition classes and the work of visiting dietitians in correcting bad food and health habits which impair nutrition are entirely neglected. Such an oversight is hardly excusable in the light of the important bearing which the treatment and prevention of defective nutrition have upon the incidence of other illnesses, particularly tuberculosis. The chapters on workmen's compensation, compulsory health insurance, industrial medicine and state medicine, while necessarily brief, are well handled. A bibliography is appended, but here the fault is the same as in the text, a far too slight consideration for child welfare problems.

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Successful Family Life on a Moderate Income. By MARY HINMAN ABEL. Philadelphia: J. B. Lippincott Company, 1921, pp. 256. \$2.00.

This book is one of the series of Home Manuals edited by Benjamin R. Andrews. Some of the chapter headings will give an idea of the content: "The Higher Values of Family Life," "The Financial Partnership," "The Housewife's Contribution as Buyer and Manager," "The Family Budget, its Purpose, Use and Aims," "The Look Ahead."

A further discussion of the book will be found in the editorial section of this number.

The Nervous Housewife. By ABRAHAM MYERSON, M.D. Boston: Little, Brown and Company, 1920, pp. 273. Price \$2.25.

This book offers a stirring challenge to the student or teacher of home economics. Its title gives no adequate clue to its significance. From the first page to the last the modern home and the relation of women to it is as much the theme as the nervousness of the housewife. The connection is clearly brought out. The book therefore has inter-

est and value for a much greater variety of persons than the nervous housewife herself, or her medical adviser. Every husband will find words of wisdom and helpfulness in it. Every student of home economics who goes beyond the arts of cooking and sewing, and studies the problems of the home will be aroused to new efforts to ferret out and cast aside the "inefficiency and waste inseparable from individual housekeeping," and find means of substituting for the "bad effects from the segregation and privacy of the home" a more truly social spirit. Dr. Myerson makes a vital point when he states that behind the divorce evil is a huge body of quarreling and divided homes. Uniform divorce laws are not so much what society needs as a reorganization of the home, including the relations of the husband and wife to each other and their arrangements for their children. Leaders in the home economics movement must agree with the author in the belief that the home must be reorganized on the basis that the man and woman are equal partners in the relationship. How this reorganization is to be effected is the problem—a worthy one for every woman and indeed every man to study.

MARION TALBOT,
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Food and Life. By MARION LANSING AND LUTHER GULICK, M.D. Boston: Ginn and Company, 1920, pp. 182. \$0.68.

This little book has the avowed purpose of interesting children in the food business and leading them to assume intelligent responsibility for their own food habits. It is not a textbook but it will prove very useful for the teacher of home economics, of physiology, and of geography.

The book is written in a charming style and includes many short stories, analogies and allusions to mythology and history which can be used to good advantage in that extra five or ten minutes of a lesson which it is so important to utilize. The chapters on the fuel value of foods are especially suggestive and the subject of the storage of the

energy of the sun in plant and animal cells and its subsequent release at need is put in a way that will be illuminating to many older readers.

There is the usual material on the choice of foods, with pictures and tables of the food groups. This is followed with paragraphs on definite food habits put in a form which will not tend to make children self-conscious.

There are many echoes of war literature in such phrases as "world table," "ration," "kitchen service," and there are chapters devoted to the school garden army and to canning and drying clubs. An especially good feature is the chapter on economy of food with its lessons in balancing money value against food values.

Each chapter is followed by questions, and throughout the book there is a constant appeal to action with a stimulus to do as well as to know.

FRANCES SWAIN.

Insects and Human Welfare. By CHARLES THOMAS BRUES. Harvard University Press, 1920, pp. 104, illus. 42. \$2.50.

This slender red volume is a very readable collection of five chapters designed to introduce the general public to the principles and practices of economic entomology, especially in their biological relationships, being, as the cover page advertises, "an account of the more important relations of insects to the health of man, to agriculture, and to forestry."

Part of the material appeared originally in the *Scientific Monthly*; in its present form there are four main chapters entitled In-

sects and the Public Health (24 p.), Insects and the Food Supply (24 p.), Forest Insects (24 p.), and Household Insects (14 p.). The last chapter is a brief four page summary of The Outlook for the Future.

The major part of the book is therefore directly valuable to all interested in home economics. Though popularly written, the reader is surprised on completing the book, to find what a wide range of useful as well as interesting information he has acquired. It is unfortunate that the present paper situation has made it necessary to demand \$2.50 for this volume, as it will doubtless very materially limit the distribution of this valuable book among the very people who need it most, and so reduce decidedly its usefulness. The lack of an index is also unfortunate, especially in a book containing so much that will be new to its readers.

The wide scope of these hundred pages has been made possible by consistently placing the emphasis upon the insects themselves, rather than upon the more technical details of their relationships to man, such as the species of microorganisms they transfer, either accidentally or mechanically or as hosts.

The book closes with a brief and encouraging outlook for the future, summing up briefly the various methods of controlling insect destruction, the reasons why insect spread is less limited than formerly by geographical and climatic barriers, and the emphasis now properly placed on the biological methods of control.

JEAN BROADHURST,
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NEWS FROM THE FIELD

American Food Research Institute. Announcement has been made by the Carnegie Corporation of New York of an agreement with Leland Stanford University for the establishment of a food research institute to undertake an intensive study of problems connected with the production, distribution, and consumption of food, utilizing the university laboratories so far as necessary. A grant of \$700,000 has been made by the corporation for the support of the institute during the next ten years, and it is hoped to begin operations July 1. Cooperation with existing food research agencies is contemplated, and duplication of equipment is to be avoided so far as possible.

Press reports attribute the inception of the idea to Hon. Herbert Hoover, Secretary of Commerce, who will serve as a member of the advisory committee.

The active management of the institute is to be vested in a staff of three directors, representing agricultural, human nutrition, and economic phases of nutrition. Dr. C. L. Alsberg, Chief of the Bureau of Chemistry, U. S. Department of Agriculture, has accepted the directorship for agriculture, beginning about June 1; Dr. Alonzo Taylor, for human nutrition; Joseph S. Davies of Harvard, for economics of nutrition.

Science Service, a new organization, has been substantially endowed and is chartered as a non-profit-making corporation. Its control is vested in a board of trustees composed of ten scientists and five journalists. The National Academy of Sciences, The American Association for the Advancement of Science, and the National Research Council, each elect three trustees.

At the outset Science Service is equipped to act in the following capacities: as a clearing house for news of the scientific world;

to supply special newspaper or periodical articles on scientific subjects of any sort; to cover special assignments for newspapers or periodicals in the field of science. Offices have been opened in the National Research Council Building, 1701 Massachusetts Avenue, Washington.

"Some Opportunities in Home Economics" a little four-page leaflet, has recently been brought out by the Department of Home Economics, of the University of Chicago. It is addressed to the women, experienced workers or young graduates, who today are asking as never before for definite information about lines of advancement in their fields or about selection of their life work. It is designed to help these women meet their desire to "fit themselves for the best possible service to the community and to find for themselves a well rounded, thoroughly interesting life."

The opportunities suggested and very briefly discussed are those in teaching—elementary and high school positions, supervision, normal school and university instructorships,—extension work, social work, business, hospital dietitians, writing, and home-making as a profession. The Department of Home Economics will be glad to send copies of the leaflet to any one interested.

At the Pageant of Progress Exposition to be held on the Municipal Pier, Chicago, July 30 to August 14, Mrs. Minna Schmidt, who has studied the history of dress in Europe and the Orient, will illustrate the development of various styles from the times of the early Egyptians, through the Byzantine and Renaissance periods, up to the present day modes. The production of a garment from the weaving of the cloth to the cutting and sewing of it will be one of

the features. Models will be exhibited to point out why modern styles are popular and serviceable.

Progress in mechanical inventions and better methods in education and household management are to be emphasized in the Pageant.

The educational committee is under the leadership of Dr. David Kinley, President of the University of Illinois.

An International Conference on Child Welfare is to be held in Brussels, under the auspices of the Belgian government, July 18 to 21, 1921. American participation in the Conference is much desired by the Belgian Committee on Organization. The discussions will take up the subjects of Juvenile Delinquents and Juvenile Courts, Abnormal Children, Social Hygiene of Childhood, and War Orphans.

The New England Home Economics Association held its annual meeting, May 14, at Simmons College. Dr. Martin Edwards' address upon *The Preservation of Health in Adult Life* rounded out the year's study of health.

Dr. Edwards described the prevalent "fair to middlin" efficiency. Health means 100 per cent efficiency and this means strength enough for the job, for digestion, for recreation, and a surplus for the inevitable crises of life. Diet and posture are the two prime factors which govern health. Health requires relaxation but not necessarily of long duration. "It is not the load you carry but how you carry it."

The business meeting followed the address. The association voted to affiliate with the American Home Economics Association, and to contribute annually to the Ellen H. Richards Fund.

The subject for next year's work is to be *The Relation of Home Economics to the Home*.

This meeting closed a most active and prosperous year for the association.

Harvard University is offering a Course in Vocational Rehabilitation July 5 to August 12. Persons desirous of working under the Federal Board, as well as workers already in the field, who wish to prepare themselves for more successful work, will be interested in the course. The work is open to both men and women, to college graduates, and to those who have not obtained a college degree.

Teachers College, Columbia University, will give, in the summer session, a course in problems of the administrative dietitian, dealing with organization and equipment of diet kitchens, formula rooms, main kitchens and accessory departments; administrative duties of a dietitian; hospital routine and ethics; dietetics for nurses; pupil dietitian training. This course will be under the direction of Rena S. Eckman and Eleanor Wells.

NOTES

The American Home Economics Association participated in the ceremony when the National Women's Party presented to Congress Adelaide Johnson's statue of the three suffrage pioneers, Elizabeth Cady Stanton, Susan B. Anthony and Lucretia Mott. Jane Addams presided and Speaker Gillett accepted the statue on behalf of Congress. Eighty-five national women's organizations and those of six foreign countries, besides a number of local associations, were represented. The Washington, D. C., Home Economics Association and the American Home Economics Association were jointly represented in the ceremony by Anna Richardson, Emma Jacobs, and Ethel Ridgeway.

Two educational moving pictures films which serve a real purpose in connection with household arts are: "Making Soap", put out by Kirkman's Soap Company; and "Wash Day", by the Laundry Board of Trade, 711 Times Building, New York City.

THE Journal of Home Economics

For those interested in Homemaking, Institution Management,
and Educational Work in Home Economics

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THE Journal of Home Economics

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HOME ECONOMICS AT ILLINOIS¹

EUGENE DAVENPORT

Vice-President, University of Illinois

The University of Illinois was one of the first institutions in the United States to turn its attention to the problems of home and homemaking. So well did the early attempts succeed that the President of the University married the professor, and so small was the outfit that this wedding ceremony closed out the enterprise, whereby the development of the subject of home economics went into a state of suspended animation. It was revived after many years and put under the direction of Professor Isabel Bevier, who entered the service of the University on April 18, 1900—an excellent beginning for the twentieth century.

There was much discussion about an appropriate name. Professor Bevier, I remember, felt that the need of the times was for something which might be called "Applied Science for Women" but the demand was for instruction in homemaking, and the choosing of the term "Household Science" for the name of the department was, all things considered, entirely logical. As in many other new enterprises, much time and energy were expended, if not wasted, over the country in the discussion of mere nomenclature, and the term "Domestic Science" settled down upon us, particularly in the high schools, as a kind of permanent name for this latest adventure along academic lines. Still later, further attention was given to the much debated subject, this time the idea of economics being emphasized, and Illinois followed the custom of most colleges in adopting the new name of "Home Economics," by which the subject has latterly been known.

¹ Presented at the Recognition Service in honor of Professor Isabel Bevier, May 26, 1921. Professor Bevier retires this year from her work at the University of Illinois.

Whatever the name, the subject matter of study covers those three great fundamentals of civilized society—food, clothing, and shelter. Naturally at Illinois as elsewhere, the earliest attention was bestowed upon food, more especially from the standpoint of proper maintenance of the human body. The study of clothing came later, but with regard to shelter, we have as yet hardly made a beginning.

Chemistry having been a leading science in this great field, as in agriculture, it was more than natural, indeed it was quite necessary, to employ this great science in the earliest stages of exploration; but it became more and more evident that not only chemistry but physics and physiology lay at the bottom of the food question, if not also of clothing. Later on, the subject of expending family income began to bulk large in the study and teaching of this great subject. Here as elsewhere, the question of good taste, as expressed in design and decoration, even of our tables, came into proper prominence; and the department has expended no little energy and careful thought in the attempt to establish these fundamentals upon a foundation of good taste.

Finally, this department has never for a moment forgotten the fact that all these subjects are distinctly humanistic and involve to an exceptional degree that quality known as the human equation. For that reason the teachings of the department have been in the concrete rather than in the abstract, always with the definite purpose of making its appeal to the better side of humanity in its domestic relations.

From the very first, the department has been keenly conscious of its objective. If it had been established mainly for the purpose of training women for professional careers, I presume the subject matter would have been somewhat differently treated, and perhaps upon the whole, a different set of results would have been accomplished. However, while the department has never lost sight of the human element and of the basic fact that it deals with human beings, yet it has constantly kept in mind the thought of human beings in the home relation, and its great purpose has always been to improve the home, either directly through the training of housekeepers or indirectly through the training of teachers.

It is my abiding opinion that this fact lies very close to the foundation of the remarkable success that has attended the career of Professor Bevier in the University of Illinois. Much as she has been interested in her girls, and assiduously as she has labored to find them positions, after all, the one purpose always in mind as the final goal of all that might be said and done and taught was nothing less than the American home. For her ability always to keep this in mind amidst all the strain and

stress of pioneer endeavor, the country owes her a debt of gratitude above that which is owing to most women. She has had her associates and her co-laborers, both here and elsewhere, and many have achieved much in this most useful field, but among them all no name stands higher for the great objective than that of the woman we honor today.

The objective being clearly in the mind of the department, its service to the University became almost a matter of inference. Clearly, if the sole purpose of the department had been to develop professional courses, it could never have appealed to the great mass of women students of the University nor would it have had the direct contact with home-making which it has all along enjoyed. Because of this objective the purpose has been to make the appeal to all classes of university women seeking a higher education. Its courses have therefore been outlined and conducted with a double purpose in mind: First, the presenting of home economics as a part of a liberal education; and second, the development of courses leading to a profession in teaching, dietetics, and cafeteria management.

During the twenty-one years of the existence of this department, there has come into its service in one way or another no fewer than 72 individual members of the faculty, 55 of whom have belonged to the instructional staff, serving it throughout the academic year. This faculty has been drawn from many institutions and has represented the best thought of many people. It has served faithfully and loyally with results which I am sure are extremely gratifying.

The first five graduating classes, beginning with that of 1903, numbered, respectively, 3, 4, 5, 7, and 9; after this the number rapidly increased, reaching 94 in 1918, but dropping somewhat for the last two years, under the influence of war conditions. The total number is 630, of whom 190 are married, 228 are teaching, 14 are cafeteria directors, 26 are dietitians, a considerable number are widely scattered in various lines of work, and 14 have passed beyond.

The total number of students coming under the instruction of this staff for the last 21 years is approximately 5000. The number registered for the current year is 560, of whom about 80 per cent are majoring in home economics, the remaining 20 per cent representing that group of young women whose chief interest is in other lines and yet who desire some touch with this great subject as a part of a liberal education.

If efforts are to be judged by their results, whether in respect to alumnae or the present registration of undergraduate students, it is not too much

to say that the purposes of this department have been in the main accomplished, by which is meant that the department has trained hundreds of competent executives and teachers without such exclusive attention to the professional as to break the contact with that great mass of university women who are to become, not teachers or professionals of any kind, but the heads of American homes. To achieve this double purpose has been the great ambition of the department, in which it has eminently succeeded.

Naturally, when a great work has been accomplished, we seek the individual whose leadership has blazed the way, realizing well that in all great work there is somewhere in the enterprise a genius and a guiding hand. In this case the individual is not hard to find.

Professor Bevier has given her life unsparingly to the development and conduct, day by day, of this department. The field was almost entirely new as a university subject. People in general have only now begun to realize that the great business of housekeeping rests upon scientific principles if only they can be discovered and brought out. There was naturally much impatience twenty years ago at what appeared to be slow progress. There was much demand for the doing of impossible things, and here, as in many cases, it was the friends of the movement who in some respects made progress difficult by expecting of the department what it could not render without entirely setting aside its university objective.

If it had yielded to pressure fifteen or twenty years ago, we should not now have, as we do have, strong and well developed departments of home economics in hundreds of high schools in the country. Realizing the significance of a university department in home economics as compared with a high school department, Professor Bevier set her face strenuously to the development of such courses of instruction as would produce permanent results.

It was decidedly pioneer work for Professor Bevier and her co-laborers. Here she was hard at work making bricks both with and without straw. In other places other pioneers were dreaming and working, succeeding and failing, each trying as best she could to solve the problem of her institution and locality, but each was practically working alone for the study was not understood in university circles, even being considered, in many places, as an academic joke.

In many ways these good women did not have even a fair chance. For example, when a well trained professor is greeted in the morning by her associates with the threadbare question, "Have you got the dishes

washed?" it is not the sort of inspiration needed to develop a great new subject. In those early days the most common allusion to a home economics department was as a matrimonial factory, a challenge which was immediately accepted by this department, which undertook to justify its line of work on the broad basis of homemaking. By attending strictly to its business and by getting results, this department has slowly but surely justified itself, not only in the opinion of the student body and of the public, but of the faculty as well.

I think it is not too much to say that at present no department of the University enjoys more of the confidence and respect of the institution than does the department of home economics. To say that this gratifying achievement is mainly the work of one person is perhaps putting it too strongly because Professor Bevier has had many able and loyal associates within the department and in kindred departments. But even so, the difficult task of choosing between alternative courses, of deciding what to do and what not to do, what to undertake and what to let alone—this great task has rested almost entirely with the head of the department, and there have been few to help her, not from an inclination on the part of the rest of us to avoid responsibility, but from sheer inability to function efficiently in this great subject. Her nearest associates in administrative circles have been obliged to rest content with standing on the side lines, dropping here and there a word of encouragement but realizing all the time that their real service was of slight account. All in all, therefore, whatever success we have achieved in this University in the development of home economics must go, so far as leadership is concerned, exclusively to the one whom we honor today.

She has not only been a force in the development of her chosen subject in the University of Illinois, but she has been a national figure as well. She has been an inspiration to thousands of young women who have been so fortunate as to come under her influence, and she has been a benediction to the University.

We count it fortunate for those who may come and go as the years go by, and fortunate indeed for those who sojourn here that so excellent a portrait of so lovely a character shall be left among us as almost a speaking remembrance of her who so long labored that others might live better lives. We are all deeply grateful to the alumnae of this department for their labor of love in bringing this portrait into existence and hanging it upon the walls where it may meet and greet with its inviting smile the thousands who come afterward.

PRACTICAL TEACHING OF TEXTILES IN HIGH SCHOOLS

GRACE G. DENNY

University of Washington, Seattle

For high school textile work, the teacher can well afford to forget manufacturing processes and historical phases of the textile industry. If she will look about her in any class room, she will find enough textile material for a series of interesting lessons more practical and more immediately usable than can be gained by the text book approach.

Take, for example, the wool fabrics represented in the coats, suits, and dresses of the teachers and pupils. A variety of introductions may be made to the subject of wool. Any approach which is immediate and natural will catch the girl's interest at once.

Following are three suggested lines of study growing out of the wool clothing found in class:

One Method of Approach

Identify wool materials: Those found in class. Those known at home.

Contest to see who knows the most wool materials: Pupils bring samples from scrap bag at home. Mount a sample of each and place before the class, or wear a garment showing a kind of cloth.

Practical quiz on fabrics: Pass around samples (numbered) with no information. Pupils write down, opposite number, the name, width, composition, (all or part wool), weave, or whatever facts studied.

Compare fabrics: Give characteristics—good or bad points; e.g., velour catches lint, French serge wears shiny, broadcloth with nap pressed one way requires more material for cutting.

Compare cost: Include width and length of wear. Compare similar materials, as albatross, challis, cashmere, or serge, cheviot, tricotine.

Study wool and cotton mixtures: If an example of this kind is shown, find other materials, as brilliantine, cotton warp baby flannel, shepherd check mixtures, viyella flannel. Test by burning yarns raveled out of cloth. Test by boiling in household lye. When are cotton mixtures desirable? As in children's dresses and blankets. When are cotton mixtures undesirable? As in cotton warp serge. Why is wool warm? Why does wool not wrinkle like cotton? Why does wool shrink (borrow microscope and show fibers).

A Second Suggestion

Clothing budget (collect data in class): Cost of dresses and coats. Length of wear. Plan a budget on two or three year basis.

Discuss buying of coats and dresses: Ready-made vs. homemade. Does it pay to buy high grade garments that wear longer? Materials, what to expect of them. Colors and textures. Style or lines, becomingness. Trimming.

Possible shopping excursion: Someone is to buy cloth or garment. Let class make study of garment or cloth at store.

Care of garments (demonstrate with actual garments): Pressing—extreme heat harmful to wool and silk. Brushing. Sponging. Hanging up. Dress covers. Protection from moths. Removal of spots—acid stain from chemistry laboratory (neutralize), grease spots, paint spots, ink spots. Remove actual stains in laboratory or class room.

Removal of shine from French serge: Demonstrate. Explain cause of shine. Explain worsted yarn and cloth.

Washing sweaters or infant's wool clothing: Demonstrate in laboratory, or discuss it, have it done at home and result brought in. Explanation of shrinking. Proper method for washing woolens.

Mending and repairs: Patch (if one is needed). Darn (with yarn from cloth or human hair). Use of mending tissue. Sewing on buttons, hooks and eyes, and general repairing needed on actual garments. Have a day for putting clothes in order. Bring garments from home.

A Third Possible Plan

Where do our clothes come from? Store, factory, mill, sheep ranch. Local store or mail order house.

Clothing factories—New York, Chicago, Buffalo. Conditions in factories.

Cloth mills—Pennsylvania, New York, New Jersey, Massachusetts. Local western mills—Oregon, Washington. If near a mill, plan to visit it.

Sheep growing—Australia, South America, Wyoming, Montana, Ohio, Oregon, Washington, California. If in sheep-growing region, get facts about local industry. Where are fleeces sent? Why grow sheep for mutton and use wool as by-product? What is heavy shrinking wool?

Kinds of wool—Short, kinky, long, smooth. Hair—mohair from Angora goat, camel's hair.

Kinds of wool cloth. Why the difference between challis and tweed, gaberdine and mackinaw cloth? What is shoddy? Where is it used? Why?

Collect pictures (magazines, papers, books—The National Geographic Magazine is excellent) showing countries or cities where wool is grown or manufactured. Let any member of the class bring in things of interest on the subject.

Store exhibits: Ask merchant to write for exhibits showing grades of wool and processes of manufacture to make window display. Let pupils study material.

Likewise, one might take cotton goods used in sewing classes and discuss the above phases and many others which will naturally suggest themselves. Suppose the cooking laboratory needs a supply of towels. Why not make use of this opportunity to teach a real lesson in shopping? Let a group of girls plan with the amount allowed what kind of towels and how many shall be purchased. They may do the buying, hemming, marking, and laundering. To do this, they must know what is in the market and whether huck, crash, or glass towelling will best suit their purpose. The pocketbook will decide between cotton and linen. At the store, they will find two or three qualities from which they must choose. This choice calls for exercise of judgment. Is there a difference in absorbing power, wearing quality (which means withstanding the attacks of the laundry)? To purchase towels intelligently, the girls should know the relative value of cotton, linen, and union fabrics, the relative strength of crash (plain weave) and huck (fancy weave), the relative absorbing power of honeycomb, huck, terry, crash. They should be able to detect an excessive amount of dressing. The question of buying toweling by the yard or the made-up towels may have to be settled.

Is it not possible for the teacher with the aid of the merchant to give the girls an actual lesson in shopping? After all, this is our purpose in teaching textiles.

This brings us to the question, "Should textiles be taught in high school"? Our aim is to train for actual homemaking. Does the homemaker think of her duties as dietetics, textiles, household management, budget making? If we ask ourselves "What does the homemaker need to know about textiles?", the answer will eliminate much that is in our text books. As intimated above, the project method does away with formality. It deals with existing circumstances as the actual homemaker must do. This approach to the subject will doubtless win greater approval from the mothers of high school girls. But many a teacher will protest that facts will be omitted and there will be no uniformity in teaching. What if facts are omitted? Unless they serve to make the girls better purchasers, they are not useful here. I have no desire to see textile teaching standardized. It should be spontaneous and grow out of the local need.

Suppose the dining-room or the girls' rest room at school needs furnishing, or that some mother will allow the class to plan the furnishings for a room in her home on a certain sum. This is real home furnishing.

It is exciting to learn about rugs and curtains, color and design, when one can actually carry out her own ideas. There is not only the study in books, magazines, and stores, and the actual buying, but there is the making and hanging of curtains, making pillows, table covers or couch covers, and, finally, the report.

In connection with the study of child care, a complete layette may be made for a hospital baby or a small brother or sister. Here is not only an acquaintance with many materials (knitted goods, flannel, nainsook, batiste, albatross, eiderdown, birdseye) but an appreciation of dainty stitches and design, a study of costs and care of clothing—all related to a real, live baby.

These are merely a few suggestions showing the way this snowball of interest will grow, provided it starts rolling near home.

It is hard to believe that there is a high school girl entirely indifferent to her own clothes. If she cares about her appearance, she cares about her clothes. Her clothes are made of cloth (exception leather). Likewise, every normal girl cares about having the house beautiful; her mother's home where she receives company, and, most of all, her own future home. She wants it attractive and to accomplish this, she must know how to get the most for her money. House furnishings consist largely of textile fabrics, as bedding, table linen, towels, rugs, hangings.

Here is the motive, the interest is easily aroused. The teaching material is at hand!

Methods and Teaching Agencies

Get acquainted with local merchants. They will want to cooperate.

Get acquainted with the mothers. They will share their scrap bags with your classes.

Bring examples of your own clothing or room furnishings to class. Collect good examples of table runners, pillows, pottery, pictures, which you may show to classes.

Secure films showing manufacture of textiles or clothing.

Mount pictures of interest. Place on bulletin board. Use in connection with subject being discussed.

Borrow ready-made garments from stores.

Have class excursions to stores and homes.

Compare (where possible) new and washed or worn fabrics, as towels, handkerchiefs, table linen, hosiery.

A SURVEY OF FARM HOMES¹

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The survey on which the following article is based was planned primarily as an aid in developing methods of extension work in the North and West. The findings include much valuable information regarding the character and equipment of typical farm homes, the kind and amount of labor performed by the farm housekeepers, and the relation of the farm home to the life of the community. Since these subjects are now receiving wide discussion, a summary of this part of the survey is here published as a contribution to the definite information on which must be based any satisfactory solution of farm home problems. It is much to be regretted that no entirely comparable studies of city homes are available.

St. Joseph County in southern Michigan was chosen for this survey because, in the prevalence of diversified farming, in the proportion of tenant farmers to owners, and in various other conditions, it was considered typical of the agricultural districts of the twelve North Central States within which resides about one-third of our farming population.

The towns, none of which has a population of much more than 6000, are connected by good gravel roads, and five railroads cross the county, giving easy access to several cities. Battle Creek and Kalamazoo, Michigan, and Fort Wayne, Indiana, are all easily reached by rail within 2½ hours. The country is gently rolling and varied by many bits of woodland and by numerous small lakes, whose shores are lined with resorts and cottages. The principal crops are corn, wheat, oats, rye, and beans. Special crops are produced, such as fruits on the rough land, potatoes in sandy soil, and mints on the large marshes.

The areas surveyed were near the towns of Colon, Centreville, and Three Rivers. Each of the 91 farms in the selected areas was visited. The questions asked covered the general character of the farm, the make-up of the family, and the following phases of farm home life: the house and its equipment, household labor, social life, and economic conditions. Data were also gathered regarding those phases of farm work which most directly affect either the food supply of the farm, or the work of farm housekeepers.

¹ This survey was made in St. Joseph's County, Mich., in the spring of 1917.

All the women interviewed spoke English easily. With possibly two exceptions all were native-born, though the surnames indicate that one-third of the families were of German descent.

The farms ranged in size from 3 to 400 acres, with an average of 115 acres, of which an average of 97 were under cultivation. Except for a few fruit and dairy farms, diversified farming was the rule in the areas studied.

There were 72 owners and 19 tenants among the farms studied. The records do not indicate any noteworthy differences between the two groups, save that, as usual, the tenant farms averaged larger than those worked by the owners.

Because the length of tenure of a farm affects the amount of improvement that can wisely be made on a farm home, data were collected to show the length of time the families stayed in one community and on one farm. Fifty-two per cent had lived in their present community 25 years or more, 8 per cent less than five years, and 2 per cent less than two years; among the families who had lived from 2 to 5 years in one community, 25 per cent had changed farms, and this percentage was found to increase gradually as the length of time the families had been in the community increased until, among those who had lived there over 25 years, 75 per cent had moved from one farm to another. Some changes are, of course, due to tenants becoming owners and to marriages.

Live Stock. All of the farms reported cows; less than three were kept on 21 per cent of the farms, and from 10 to 15 on 9 per cent. The average number of birds in the flocks of poultry was 78. The number of young birds raised per year varied from none to 350, with an average of 117 for the farms reporting. In many cases the need of better methods in the care of poultry was shown by the fact that the number of birds raised was much smaller than the number hatched.

Orchards. Seventy-five per cent of the farms reported orchards, some for home supplies only, others for both home and commercial use. Apple trees predominated but there were also cherry, peach, pear, and plum trees in the home orchard. Families having no orchards purchased fruit for home use or had it given to them by their neighbors. All the families seemed to be fairly well supplied with fresh fruit and preserves. Whether it is worth while for the farm wife to use valuable time and energy in trying to put up the poor fruit produced by such dying and untrimmed trees as were frequently seen along the roadsides is perhaps doubtful, but the fruit from a good orchard is a valuable part of the food supply of the farm family.

Gardens. Gardens were found on all the farms. In most instances only one planting was made a year and only the common vegetables were grown. Three farms had surplus garden products to sell. In general the families studied did not appear to be so well supplied with vegetables as with fruits.

Grounds. Notes were made on the character of the grounds surrounding the farm houses because this affects both the attractiveness of the place and the cleanliness of the house. All of the places would have been improved in appearance by more shrubs and vines to soften the sharp angles of the house and to screen the foundations and outbuildings. Most of the houses had lawns in front, but in a few cases these had been pastured so closely by farm stock that there was no grass left. Scarcely a house had a grassy back yard; in most cases the soil had been tramped bare by men and animals, and there were patches where it was kept saturated by the waste water thrown out from the kitchen. Under such conditions much unnecessary dirt is tracked and blown into the house, and the work of cleaning is increased. The practical and esthetic advantage of well kept home grounds is a point now being emphasized in the programs and campaigns of rural home clubs.

General character of houses. With possibly three exceptions, all the houses were painted and in fair condition. Many had had additions built and as a result the floors and roofs were on different levels. Such irregularities in plans and levels often complicate the problem of installing drainage, heating, and lighting systems. In over 11 per cent of the houses in this study, there were steps between the dining room and the kitchen. The disadvantages of such differences in floor level, where there is much passing, is obvious.

The number of rooms varied from 4 to 15 with an average of 8, exclusive of halls and bathrooms. This allows an average of one person to two rooms, whereas in city surveys the average is one or even two persons per room.

One third used the same room as dining room and kitchen, and 19 per cent of those who reported having these rooms separate ate in the kitchen during the winter. This saved labor and fuel but at the sacrifice of pleasant surroundings.

Storage facilities. In the great majority of houses the cellar was the chief storage place for fruits and vegetables though in a few cases they were buried in the ground. Over half the families stored meat in the cellar, while about a third had a smoke-house or other outside building for the smoked meats. Eighty per cent of the houses were provided with

woodsheds, 11 per cent had only wood-piles, while in 6 per cent the firewood was kept in the cellar. The distance from the wood supply to the kitchen door varied from 2 to 120 feet, with an average of 18 feet. When the stove was across the kitchen from the door, as it frequently was, the actual distance for carrying the wood was that much longer.

Screens. Reports on the screening of windows and doors showed that in practically all the houses the kitchen windows were screened and in most cases also the other windows which were frequently opened. In 63 houses all the windows were at least partially screened. All kitchen doors were screened and most of the other outer doors. Twenty-three houses had screened porches.

Lights. Of the 91 farm homes, 80 used ordinary kerosene lamps and seven acetylene gas. There was one house in which kerosene with mantle burners was used, one equipped with blau gas, one with a gasoline system, and one with electricity from a town plant. In one of the areas studied electric current was carried past eight of the houses but was not used in any of them. It could probably be obtained without difficulty in several others as well.

Arrangements for heating and cooking. The installation of better methods of heating seemed to be progressing more rapidly than that of lighting, as was shown by the fact that 18 per cent of the houses surveyed had furnaces. Of this number, one-fourth were hot water, and three-fourths hot air. Forty-eight per cent of the houses had wood stoves only, 14 per cent coal stoves only, 9 per cent both kinds of stoves, and 11 per cent stoves which burn either. Four homes reported the use of oil heaters. The average number of heating stoves per home (excluding the homes heated by furnace) was 1.69.

Eighty-eight per cent of the housekeepers used wood for cooking, 12 per cent wood and coal, and 1 used coal alone. Seventy-four per cent also used some kind of oil or gas stove; over half of these burned kerosene, and about one-fifth gasoline. Acetylene, which was just coming into use in one community, was used for cooking by two housekeepers.

The fact that for most of the farm homes wood could be obtained from the farm woodlot probably explains why so many farms used it for both heating and cooking.

Water supply and sewerage. Driven wells were found on 89 per cent of these farm homes and open or dug wells on the remainder. Eighty-nine per cent reported cisterns also.

In all but four cases there was water within ten feet of the kitchen door and on 55 per cent of the farms there was cistern water in the house.

In all cases the water was pumped either by hand or by power. There were 33 farms equipped with windmills or gasoline motors, but only 10 of these had running water in the house. But it may be mentioned that 12 others had in the house a pump with soft cistern water.

In 60 per cent of the houses there were kitchen sinks, in 12 per cent bathtubs, in 7 per cent hot water boilers, and in 10 per cent water-closets. Seven per cent had separate bath rooms equipped with tub, hot water, and closet.

A septic tank or cess pool was found in 22 per cent, leaving 78 per cent in which waste water was emptied on the surface of the back yard. About one quarter of the kitchen sinks drained into a removable pail. Ninety per cent of the houses used privies of which about one-seventh had removable receptacles or walled vaults.

Desire for modern improvements. The term "modern improvements" was used to cover running water, hot water, set bathtub, some system of sewerage, gas and electric lights, and furnace. Only 2 of the 91 houses visited were equipped with all of these; 26 had some and needed others; and, in 4, plans had already been made for installing certain ones. All but nine of the housekeepers visited were eager for improvements. The form most generally desired was a good lighting system, next came a furnace, next a water system, next a bathtub, and last sewerage. A considerable number also wished additions and repairs to the house, new furnishings, and other conveniences. From the answers which the women gave to questions about modern improvements the observer was convinced that they saw the advantages but did not know what practical steps to take to introduce the changes into their particular houses with the money and labor which they could command. Permanent improvements were less likely to be made in the case of tenant farmers than where the families owned the place in which they lived.

Labor-saving devices. These last two points are emphasized by the fact that movable conveniences were relatively more common than improvements in the houses themselves. For example, 67 per cent of these farm housekeepers used washing machines, and 43 per cent vacuum cleaners, 14 per cent used self-heated irons, 11 per cent fireless cookers, and 15 per cent refrigerators. Telephones were installed in 49 per cent of the houses, an unusually low figure for such districts, and due probably to a disagreement between two companies operating in the neighborhood. All who needed churns and all but 10 per cent of those who could make use of separators had them.

Size and character of families. The number of persons making up a family often varied at different times, but the average for the year was 4.1. The average number of children under 14 years of age was approximately 1.1 per family. About 20 per cent of the families included no children, and 25 per cent none under 14 years of age; about 36 per cent had only one child; 12 per cent had four or more children; and none had more than six. Twenty-five per cent of all the children were under 6 years of age, and about 40 per cent were between 6 and 14.

The adults in the family frequently included married children, parents, or other elderly relatives. Nine families also reported boarders for part of the year. These were usually school-teachers and hired hands who were boarded for the landlord or neighbors. The hired help employed on the farm was usually lodged and fed at the farm home when hired by the month; for day help, dinners or dinners and suppers were ordinarily furnished.

Health. Although 11 per cent of the families lost no time and reported no expense on account of illness, the average number of days per year lost was found to be 38.8 per family, or 10 days per person. Nearly 40 per cent of this was among elderly persons who did no regular farm or housework; another 40 per cent among the workers, and 20 per cent among the children. The housekeepers themselves lost, on the average, 8.3 days. No account was kept of the extra help hired or extra work performed on account of illness. In the few instances of severe illness occurring among these families the patients were cared for in hospitals. The annual money loss occasioned by illness was estimated as \$31.20 per family, a sum found by adding the cost of physician's services and medicines to the money value of time lost as reckoned at current wages for farm hands and hired girls. Had physicians been consulted often in chronic cases, the amount would have been much larger, as the days of illness in 5 such cases amounted to 1241 in a year.

Household help. Among the women questioned, 11 per cent had no help in the household work, 69 per cent had help from the family, 10 per cent had hired help for a considerable part of the year, and 10 per cent for a month or less during the busiest season.

Whenever help was employed, it was required by some special condition, such as illness, an unusually large family, or extra work. In none of these farm homes was such expense incurred as a matter of luxury. The hired girls received, in addition to board and room, weekly wages varying from \$2.25 to \$6.00, and averaging \$3.87. Laundry work was

usually included among their duties. Women hired by the day were paid at a slightly higher rate.

The kind and amount of help received from members of the family varied greatly. Other women in the household were the most important and most continuous source of such assistance, but in one-sixth of the farm families the men carried wood and water, turned the washing machine, or did other heavier pieces of work, and often the children aided regularly, especially during school vacations. The returns which a housekeeper secures from the help at her disposal appear from these records to be one of the best tests of her ability as a manager.

Length of working day. The only feasible method of measuring the working time of these women was to subtract the hours spent in leisure and for personal affairs from the total number of hours between getting up and going to bed. Since the women were on duty when meals were being served, this time was included in the hours of work. The hour of beginning work in the morning varied in summer from 4:00 to 7:00 o'clock, with the average at 5:05 a.m. In the winter the range was from 5:00 to 8:00 with the average at 6:17 a. m. The hour of ending work in summer was from 6:00 to 10:00 o'clock in the evening, with the average at 7:44 p.m. Corresponding hours for winter were 5:00 to 10:00 with the average at 6:53 p.m. The average length of the working day was just over 13 hours in summer and 10 hours in winter, or $11\frac{1}{2}$ hours for the entire year. The average time for leisure and personal affairs was $1\frac{1}{2}$ hours in summer and $2\frac{1}{2}$ hours in winter, or 2 hours a day for the entire year.

Nineteen of the 91 women reported that they had no leisure in summer and only one hour of free time daily, on the average, in winter. On comparing the details of their records with those of their 72 less driven neighbors, it appears that the differences were due not so much to larger families, more small children, or poorer house arrangement and equipment as to more sickness in the family, more sewing done at home, and especially to less help, both from the family and hired, and also to helping more with the dairy, poultry, field work, and chores. Of course, the time spent at table or sewing does not represent fatiguing work, and would perhaps be considered as time off by some women, but on the other hand it does not leave the housewife free from immediate responsibility of getting a certain task done. It cannot be a desirable condition in which one-fifth of the women in a community say there is no time during the day in which they can drop this active responsibility.

Time spent on special kinds of work. It would have been interesting to study the distribution of the housekeeper's time among all the phases of her work, as was done in a previous study,² but in the present case this was impossible and special records were confined to dairy, poultry, garden, and laundry work. Among the 91 housekeepers, dairy work (including butter-making) consumed, on the average, 49 minutes a day, garden work 21 minutes, and poultry work 43 minutes. Of course, these periods were much longer at certain seasons, such as the hatching period for poultry, but, taking the year through, an average of 1 hour and 52 minutes a day was spent on these extra-household activities. Laundry work required an average of 62 minutes a day or about $7\frac{1}{2}$ hours a week. With the average working day $11\frac{1}{2}$ hours long, $8\frac{1}{2}$ hours appear to have been given to the regular household tasks, such as preparing and serving food, keeping the house in order, caring for children, and mending, and for such occasional work as making garments, caring for the sick, and helping out with field work in times of emergency.

Social and community life. The replies to questions on this point indicate that few of the women made much systematic effort to develop social life in the home by means of music, games, or conversation on subjects of general interest. Seventy per cent of the women said that some time was spent in such recreation, usually in winter evenings, but the impression given was that they had thought little of its significance as a means of making the home life more interesting and attractive.

There was considerable social intercourse with the neighbors and the community. Aside from weekly or more frequent trips to town, practically all the women exchanged calls with their neighbors, the visits received averaging about one in 3 or 4 days and those paid about one in 9 days. The number of parties attended varied from none to 35 a year, with an average of three. Picnics were less popular, averaging only about one a year, though three women went to about eleven each. The average attendance at "movies" was 15 performances a year, but the figures varied with the locality. The largest attendance was in a district where there was a community "movie" in which the local people were stockholders, and here the farm women attended, on the average, 32 performances a year. In another district where there was an ordinary commercial motion-picture house, the farm women attended eight times a year. The average number of lectures attended was four, and nearly

² Jour. Home Econ. 7 (1915), No. 7, pp. 348-353.

half of the women reported not going at all. This was often due to a lack of lectures to attend. On the average, farm women were away from home for business and pleasure 3 times a week.

Another form of social life is furnished by societies and clubs. In this study, attendance at a particular church was considered as membership in an organization. Twenty-two per cent of the women did not belong to any organization, 33 per cent belonged to one only, 15 per cent to two, and 30 to three or more, one woman belonging to seven. The most general membership was in church, next came the aid society, the grange and gleaners, social clubs, women's clubs, lodges, and a variety of organizations, such as sewing clubs, temperance societies, and Red Cross chapters.

While the women replied readily to the question of improvements desired in the homes, they hesitated when asked about possible community improvements. Their apparent indifference is shown by the fact that 41 per cent replied they did not desire any. Six others said they went to town for their social life and so were not interested in local improvements, and they seemed to feel no more responsibility for what the town offered than for conditions nearer home. Twenty-one per cent expressed a desire for more and better social life, 5 wishing for a woman's club in addition to the lodges and granges, 19 per cent felt the need of better roads, although not half this number had automobiles. Seventeen per cent wished improvements in the schools, 6 suggesting better buildings, 4 better teachers, and various individuals better ventilation, or more attractive appearance in the buildings or grounds. Only two mentioned the advantages of consolidated schools. Seven per cent wished for church improvements, the majority of these desiring a church building of their own denomination as near as possible to their homes. The possibilities of a consolidated church were even further from their vision than those of a consolidated school. Other desires were for more attractive home grounds, a community house, a library, a community laundry, a rest room at the trading center, and better markets.

Income and expenditures. Few families kept household accounts, and exact information regarding the economic conditions of the families was seldom available. In no case did a housewife use accounts as the basis for improving her household management, though several expressed satisfaction in knowing exactly how much money had been received for poultry and eggs and how much had been spent for food, clothing, and other household supplies. Women who did not keep accounts could

usually tell how much money they spent weekly or monthly for the different articles of food; they could also tell the number and cost of various garments purchased, and so estimate the yearly totals. Only six women reported having a separate bank account for household purposes, but a few others approved of such an arrangement.

In 90 per cent of the farms of the present study which reported on the sale of eggs, poultry, and dairy products, the income from these sources was considered as belonging distinctly to the home. It was not possible to secure exact figures, but the average was probably about \$240 a year, poultry and eggs bringing in slightly more than dairy products. Some women said the poultry and egg and butter money always paid for groceries, others that it also bought the less expensive articles of clothing.

As nearly as could be estimated, the average amount spent annually for food was \$36 per person, or \$105 per family. Of this, about 14 per cent went for meat, 32 per cent for cereal products, 8 per cent for cooking and table fats, 18 per cent for sugar, 21 per cent for tea, coffee, cocoa, and postum, 7 per cent for fruits and vegetables. Only a few families bought all their meat, but the majority bought what beef they used. Dairy products were supplied by the farm except that, when milk or cream was sold to a creamery, butter was often bought, usually at the creamery. Wheat grown on the farm was sometimes exchanged for flour at the local mill. The chief vegetables purchased were potatoes and canned goods. Fruits were rarely bought except for canning.

The average amount spent for clothing per family per year was estimated at about \$115. The average amount spent per person was about \$32, but this sum varied according to the individuals, being \$16 for children under 6 years, \$38 for children from 6 to 14, \$46 for children over 14, \$47 for men, and \$51 for women. A detailed study of the records shows that whatever the total sum spent by the family for clothing, the amount spent per person tends to grow smaller as the number of persons in the family increases. This is doubtless due in part to the practice of making over garments for children. These clothing estimates do not include the value of the time spent by the women of the family in sewing. The amount paid for hired sewing was very small, averaging only \$4.55 per family per year.

Estimates for the cost of coal and wood averaged \$39 (about $\frac{1}{3}$ of which was for coal), and \$6 for oil which was used about equally for cooking and lighting. One third of the families did not buy wood, as this was furnished by the farm.

Other expenditures averaged as follows: doctors fees and medicines, \$21; reading matter, \$9; wages of hired girl, \$6; railway fares, \$1.50.

The total expenditures of these farm homes as thus estimated average about \$300, or \$60 more than was received from the sale of poultry, eggs, and dairy products. In other words, 80 per cent of these expenditures for the farm family were met by the extra household activities of the housekeepers, leaving only 20 per cent to be contributed from the proceeds of the principal products of the farm.

Such figures do not indicate the actual value of the supplies used by the farm families. They do not, for example, take into account the food and wood provided by the farm, the cost of feed for poultry and cows, the value of the unpaid time given to making clothing, or various other items which must be considered in analyzing the contributions made by the different lines of work to the farm home. They do, however, indicate that the farm housewives make a large contribution to the economic support of the family as well as to its comfort and well-being.

POPULARIZING FOOD FACTS IN A DEPARTMENT STORE LUNCH ROOM

HELEN FERRIS¹

"We must devise some plan by which we can call attention in our lunch room to the importance of choosing one's lunch wisely. Many of the lunches that are being selected are far from wise."

It was the manager of a large department store who was speaking to a committee called together to consider this food question. At once, there was an objection.

"You can never make people eat what they do not wish to."

"No, not that. But can we not attract them to certain dishes? That is the way in which I should like to see some plan tried."

¹ Miss Ferris was for six years connected with the Educational Department at John Wannamaker's. She is the author of "Girls Clubs" and "Producing Amateur Entertainments."

The employees' lunch room was large and commodious, the food served cafeteria style. How could the hundreds of women and girls, men and boys be "attracted" to milk, for example, instead of coffee, if they were accustomed to coffee?

That was the problem: to make some plan that was attractive. The following was at last evolved.

The committee decided to conduct a Food Week Campaign, in the lunch room itself. Around the walls, were to be hung special food posters. Practical, informing posters? Yes, but posters on which the scientific information would be given in the advertising department's most sprightly style, with clever pictures drawn by the advertising artists. In this poster exhibit was to be included a display of the U. S. Government food pamphlets. Beneath these, a table at which a young woman would take the names and addresses of all who wished to obtain copies of those pamphlets.

In the center of the room, there was to be a table especially reserved for a "diet squad." These were to be ten store people who would volunteer to eat, for one week, the lunches selected for them. An important factor here was that each one of the diet squad was to receive his or her lunches free. (No trouble in securing volunteers!) The lunches served to the squad were to be selected for them by a dietitian, all dishes being on the a la carte menu of the lunch room.

Most important of all was to be the daily "special": some desirable dish offered at a reduced rate. Whoever refused a bargain?

It was decided, also, to push some book during the week. The book selected was "How to Live" by Fisher and Fisk. Paper-bound copies of this book were to be on sale in the lunch room. Other copies for which people could "sign up" were to be put into the store library.

Food week started auspiciously. As the employees entered the lunch room, they were confronted with a huge sign:

THIS IS FOOD WEEK. EAT THE SPECIALS. THEY ARE CHEAP.
TODAY—RICE. AN ENERGY-GIVING FOOD

RICE IS CHEAP. RICE IS EASILY COOKED. RICE IS EASILY DIGESTED.
RICE MAY BE SUBSTITUTED FOR POTATOES

The price was also posted; the reduction, evident. As the people went into the lunch room, they eagerly read the posters. The following give an idea of the methods of presentation.

ENERGY
EAT FOR ECONOMY
EFFICIENCY
EVERY DAY THIS WEEK
We will post here
A SPECIAL
because it's
'SPECIALLY GOOD FOR YOU!

CALORIES! CALORIES!
DO YOU KNOW WHAT THEY ARE??
IF YOU DON'T YOU SHOULD!
IF YOU DON'T YOU CAN
FIND OUT IN OUR DISCUSSION CLASS.

Sign Below

FREE! FREE!! FREE!!!
THE
U. S. GOVERNMENT FOOD PAMPHLETS
NO HOME SHOULD BE WITHOUT THEM!

WHY SCORN THE HUMBLE PRUNE?

EAT FRUIT!
Because in fruit are acids
necessary for
HEALTH.

Obey that impulse—Eat Fruit with your
lunch every day!

TAKE.....YOUR.....TIME

There is a young man I have passed
Who has hurried through meals so fast,
But he says, now, you know,
"I'd better go slow,
"For I want my digestion to last."

MR. GROUCH

COMES TO THE TABLE CROSS.
THEN

HE WONDERS WHY HE HAS INDIGESTION!
Moral: Do not GROUCH, especially at
meals.

A spirit of jollity at once spread about. The pictures of Mr. Grouch and the Young Man in a Hurry were most amusing. People began the first day to sign for the "free" Government pamphlets. By the second and third lunch hour relays, news of the special had gone around and the consumption of rice increased above the average daily demand. The diet squad was a center of attraction. They at once renamed themselves "The Dietetic Pioneers" and solemnly signed a pledge, drawn up by the manager, "not to do any surreptitious nibbling on the side."

The specials, offered at reduced rates for the rest of the week were: corn meal muffins; milk; apples or prunes; fish ("Eat Fish! Get in the Swim"); bean soup ("The Bean is one of our cheapest and most valuable food-stuffs").

The sale of items suggested for the diet squad menu increased as the week advanced. Each day's diet squad menu was posted beside the general menu of the cafeteria, with posters saying why each article of food had been selected by the dietitian. The day the corn meal muffins were on sale, the supply did not equal the demand by several dozen.

During one lunch hour, a small leaflet (of a size to fit into a pocket or pocketbook) was distributed to all. The heading was: "One Day A Pretty Girl sat Talking to a Friend in the Lunch Room." The conversa-

tion naturally centered around the question of a good complexion and how to secure it. They discussed the matter of lunches, and decided forthwith to read, "How to Live." The demand for that book in the store library at once made itself felt.

At the end of the week, the dietetic pioneers submitted the following report:

"After a week of dieting, we appear to be in good health and not too ravenously hungry. We have learned many things about the choice of food, and think that in the future we shall all choose our foods more wisely. We have been interested in the charts and the pamphlets showing the food values of vegetables, meat, and fruit.

"Each one of us is sorry that the week is over; even the man who is used to having coffee every lunch time will say on Monday, 'I wish I were back at the table with the dietetic pioneers.'"

What did this Food Week accomplish? Results in such an experiment are difficult to calculate. The committee in charge felt that the results in this instance were of two kinds. First, there were the results of the posters, the posted diet squad menus, the specials, and the circulars. For six consecutive days, the attention of hundreds had been called to the importance of a wise selection of food, to the relation of a choice of food to health. "You live by what you digest not by what you eat." Results of this kind are intangible. Yet we of today have a firm belief in the potency of the right kind of publicity, the publicity that is based upon scientific fact. (Witness the splendid results of the Child Health Organization with its popularized scientific methods.)

The other, more tangible results of the work were listed by the committee as follows: Over seven hundred government bulletins were sent for. Many purchased copies of "How to Live." The library copies of the same book were in great demand, as was "Feeding the Family" by Rose. A small discussion group of twelve met regularly until every chapter of "How to Live" had been discussed. The discussion was led by a teacher of the store school. A month after Food Week, the director of the lunch room reported that the demand for the specials was still greater than the demand had been for the same dishes before Food Week, especially for corn meal muffins. The dietetic pioneers continued to bring in newspaper or magazine articles on food. This showed that, in this group at least, a definite interest in food values had been aroused.

The committee strongly felt that the real dietetic pioneers were the advertising copy-writers and artists who had so colorfully presented food facts.

STAND BEHIND THE FESS AMENDMENT

A bill to help women make better homes for children and grown-ups, young and old—that is the Fess Home Economics Amendment. A survey of the legislative history of this measure shows it gradually moving forward to its place as a law on the nation's statutes.

The bill was introduced in the Sixty-sixth Congress as H.R. 12078 on January 26, 1920; it had a hearing before the Committee on Education of the House of Representatives on February 4, 1921; and was re-introduced on April 11 in the special session of the Sixty-seventh Congress as H. R. 21 and again referred to the House Committee on Education, of which the Hon. Simeon D. Fess of Ohio is chairman.

This special session of Congress was called for the definite purpose of considering emergency and appropriation measures, matters of tariff and taxation, and had a nervous undercurrent of feeling that the country should enter upon no legislation entailing great outlay of money unless such outlay seemed a matter of immediate necessity. Mr. Fess, staunch in his support of the measure but with a statesman's sense of the unpropitious moment, seemed to feel that the time was not favorable for pressing any action. However, he advised the supporters of the bill to continue with their educational campaign.

The members of the American Home Economics Association are particularly fitted for this educational work, since they can give expert testimony as to the value of the work to be accomplished. They must continue all measures which will make known the provisions of the bill and their purport. They must work for two definite ends. First, they must endeavor to make sure that every member of the House Education Committee fully realizes that an understanding public is anxious for the enactment of this law. Second, when the bill is reported out of committee favorably and is brought up on the floor of the House in December, every Congressman must have been reached by you in such a way that he will realize that the passage of the bill will benefit his constituents and the nation at large.

FOR THE HOMEMAKER

USE OF THE PRESSURE COOKER IN THE HOME

MINNA C. DENTON

Experimental Kitchen, Office of Home Economics, U. S. Department of Agriculture

One of the main points in favor of the steam pressure cooker in the home is its usefulness in canning. There is more or less uncertainty concerning the keeping quality of vegetables and meat canned by water-bath methods, particularly in those climates where high temperatures and high humidity combine to encourage an abundant flora of resistant bacteria. When there is no storage place for the canned goods other than one which is liable to maintain temperatures between 80° or 90° to 100°F. for days or weeks at a time during both day and night, the difficulties of water-bath canning of vegetables and meat apparently are greatly increased, and the steam pressure cooker presents the most practical method of solving the problem, which has so far attained any considerable vogue.

Data showing the rate at which heat penetrates vegetables and fruits while processing, under different conditions, are now being collected in several laboratories. One of these laboratories has already published a paper.¹ Our own laboratory has a paper on this subject which is ready for publication.²

But the pressure cooker has, of course, other possibilities of usefulness in the household, apart from the opportunities of the canning season. One of these is the saving of time and fuel in the cooking of the coarse or tough cuts of meat.

The effect of heat on meat proteins is usually described under two different headings:

¹ Heat Penetration in Processing Canned Foods. Research Laboratory, National Canners Association, Washington, D. C.

² See also What Temperature is Reached Inside the Jar During Home Canning. Minna C. Denton, *Jour. Home Econ.*, Dec., 1918.

1. Moist heat softens and gelatinizes certain proteins found in the connective tissue fibers which bind together the muscular fibers. It is the muscular fibers which constitute most of the red parts of meat, or the greater part of the tissue of "white meat" (pale muscle fibers), or the dark portions of dark meat such as is found in the breast of certain game birds. The connective tissue proteins are always cooked in moist heat if the meat is properly handled; in the case of roasted meat, they cook in the juices of the meat tissue. At least one of the reasons why tough meat requires a longer time to cook than does tender meat is the fact that it contains a larger amount of connective tissue, which therefore requires the application of heat for a considerable period; possibly also, additional water to assist in the process of hydrolysis. Overcooking of this gelatinous connective tissue, in the absence of a sufficient amount of moisture, does in the end harden it, after the intermediate state in which it exists as a soft jelly has been passed.

2. The effect of heat (whether moist or dry) upon certain other proteins, viz., upon some of those contained in the muscular fibers or meat fibers, is different from that described above. It results in the rapid separation of a considerable part of the moisture of the juice present in the muscular fiber from its protein framework, consequently the thoroughly cooked muscle fiber shrinks, dries, and hardens. This drying effect is much more noticeable in long-boiled meat than in properly roasted or broiled meat, the boiled meat being invariably harder and drier—after it has been taken out of the broth in which it was cooked, and has been cooled—than is the case with the inner tissue of meat which has been successfully roasted.

The problems of meat cookery in the pressure cooker, then, are those incident to finding the proper length of time for which a piece of meat of given size, shape, and toughness, needs to be cooked at any given set of temperature and moisture conditions. Two of the chief factors to be considered are the rate at which heat penetrates to the center of the piece of meat, and the amount of heat necessary to soften the connective tissue fibers. If this necessary amount of heat is considerable, so that cooking must be long continued, then, of course, it cannot be expected that the meat fibers will remain (or perhaps it would be better to say, will *become*) as juicy and tender as would otherwise be the case.

If the meat which has been cooked in the pressure cooker is tough, or hard and dry, it is because either (1) it has not had sufficient time or a sufficient degree of heat and moisture to soften the connective tissue pro-

teins, or (2) because it has had too much heat, and consequently some of the meat proteins have become shrivelled and hard.

It is easier to succeed with meat cookery in the pressure cooker if the meat is cut into rather small pieces than if it be in one large piece; because in the former instance heat can be applied for a shorter time, consequently with less danger of rendering the outer parts of the meat tough or hard and dry before the inner parts are completely cooked. However, if the meat be from a carcass of high grade, there should be no difficulty in cooking a pot roast of several pounds, or a good-sized fowl, without cutting it into pieces.

It is sometimes asserted that to cook meat in a pressure cooker controverts all the principles of protein cookery, whose chief postulate is that proteins become tough, hard, unattractive, and less digestible when subjected to the influence of high temperature. This postulate assumes, however, that the protein is actually subjected to the given temperature throughout its mass; whereas, in pressure cookery of meat, the art of proper cooking is to apply the high temperature only long enough to secure penetration of a very moderate degree (or amount) of heat to the center of the meat. For example, in canning chicken (cut into pieces as usual, i.e., breast, leg, thighs, etc.) in a pint jar, at a pressure of 15 pounds (retort temperature 120°C.), it takes about 40 minutes for the temperature in the center of the jar to reach the boiling point, and about 60 minutes for it to reach the temperature of the steam in the cooker. Our experience is that the chicken is usually "done" at the end of 30 minutes at 15 pounds, or at least it is done by the time the pressure has fallen to the zero point and the jar is ready to be taken out.³ However, it is conceivable that the effect of a rapid application of heat, such as brings the meat from a temperature of 20°C. to 120°C. in 60 minutes, is less detrimental to texture and nutritive properties (e.g. vitamins), than would be three hours' cooking at the boiling point.

Stews and boiled meats which are cooked in the pressure cooker, often have a richer flavor than do those cooked over the ordinary gas stove. Whether this is the case or not, depends upon the skill with which the operator has gauged the length and temperature of the cooking process, also the amount of water used, with regard to the size and shape of the pieces of meat. The length of time required for heating before the

³ This does not mean that we recommend 30 minutes as a sufficient processing period in canning chicken at 15 pounds pressure. As a matter of fact, we consider that a process of 60 minutes is much safer. It results in an attractive and palatable product, provided the meat continues to cook in its own rich juices and fat.

steam reaches the desired pressure, and that required before the pressure falls to the zero point, must be taken into account, since the cooking proceeds through all three of these periods, which vary somewhat in length with different cookers and different methods of applying heat to them.

It is a most difficult matter to give time tables for the cooking of meats in the pressure cooker, which will fit all possible cases equally well; for the time required for cooking depends, not only upon the weight and size of the piece of meat to be cooked, but also upon the shape of the piece, the amount of bone contained, and the texture of the meat. A 7-pound pot roast, which consists of the shoulder clod of a rather old animal, and which has been boned and rolled and tied to make a compact piece, may require 15 minutes to the pound, at 15 or 20 pounds pressure. On the other hand, a leg of lamb of very nearly the same weight may be perfectly done in less than half of that time, at the same pressure. "From 10 to 15 minutes per pound, when tough meat is in a thick compact mass" is about as safe a rule as can be hazarded by the present author, at the moment. However, meat which is cut into pieces (chicken, beef stew) is not timed by the pound, but by its toughness; 30 to 50 minutes is the usual rule.

Care should always be taken, not to cook longer than is really necessary, since flavor and juiciness are sacrificed as the cooking period advances, even when the meat is not allowed to become hard or dry.

Batters and doughs present special difficulties when cooked under steam pressure; since the extra pressure on their outer surface interferes with the expansion of gas generated from baking powder or from soda and acid. We should of course expect exactly this result, just as we expect to use less baking powder in a high altitude where the external pressure is lower than usual.

When expansion does not take place to the requisite degree during the earlier stages of the cooking or baking of a batter or dough, and when the gluten in consequence begins to "set" or "bake" or "crust" or "harden" before it has been properly expanded, the result is toughness and sogginess or heaviness. This is exactly the result which we get when we put a steamed pudding into the pressure cooker and run it at a pressure of 15 or 20 pounds. If the pressure cooker is to be used for such a purpose, it is better to divide the pudding into small portions (e.g., as individual molds), in order to get a more rapid heat penetration and more rapid expansion, and thus be able to reduce the time of cooking materially. It is better also, during the first part of the cooking period to keep the pet cock wide open, and even to prop the cover up so that it fits loosely in

order that the rate of cooking be not too rapid at first. When the pudding is well risen the lid may be clamped down and the pressure brought very gradually and slowly to 15 pounds for 10 or 15 minutes, in order to develop the "brown" or "baked" flavor due to the use of the higher temperature, and in order to finish the cooking process as rapidly as possible, and thus save time and fuel.

Dried fruits, too, can be successfully cooked in the pressure cooker, although as a rule they are more easily and satisfactorily cooked at low temperatures where there is no possibility of developing caramel-like flavor, and where the water is gradually absorbed before the effect of heat becomes marked. Even 5 to 10 minutes at 5 pounds pressure will often over cook the fruit—especially if the cooking vessel contains only a small amount of fruit—making it mushy and extracting a large part of its flavor into the juice, rather than preserving it in the fruit.

Strong-flavored vegetables such as cabbage and onions may be cooked in steam under pressure, with a fair degree of success, if cooked under water, very rapidly, and not too long. To this end, they should be cut into rather thin slices, well covered with boiling water, and processed for as short a time as possible. It is often the case, that 8 or 9 minutes is long enough even for cabbage.

The pressure cooker, then, is best suited to the cooking of tough meats, many cereal preparations (not most batters and doughs), dried legumes, and vegetables of mild flavor.

The pressure cooker can, of course, be used for the extraction of fruit juices for the making of jelly by ordinary methods, provided that pains be taken not to over cook the fruit and thus injure the pectin. In case of very hard fruit or vegetable tissues, extraction in the pressure cooker may sometimes result in a richer juice which will produce a larger yield of jelly, than when the fruit is cooked at the boiling point. Some experience is needed, however, in order to gauge correctly the time needed at any given temperature for penetration of heat to the center of the mass of the various amounts of fruit and water that might be used, and that needed to produce exactly the proper degree of "cook" for each kind of fruit. Directions can hardly be given offhand, as the length of cooking period depends, not only upon the kind of fruit, but also upon its hardness, ripeness, juiciness, pectin content, acid and sugar content, the amount of water used with it, the number of pounds being cooked at one time, and other factors.

SUGGESTIONS FOR THE COLLECTION OF A BIBLIOGRAPHY

The manufacturers of pressure cookers issue cookbooks with rather full instructions. Some of the latest of these books give suggestions for the treatment of steamed puddings and strong-juiced vegetables, which are designed to overcome the usual difficulties experienced in cooking them under steam pressure, including some of the points mentioned above.

Several of the home economics extension departments of agricultural colleges have issued leaflets containing helpful suggestions for the use of the pressure cooker in the home. Several which happen to be in my possession are: *Steam Pressure Cooking for the Home*, Nell M. Barnett and Elva V. Akin, Iowa State College, Ames, Iowa; *The Pressure Cooker*, Sarah L. Lewis, Oregon Agricultural College, Corvallis, Oregon; *Steam Pressure for Home Cooking*, Alice E. Skinner and Ida E. Rigney, State Agricultural College, Manhattan, Kansas; and *Cooking with Steam Pressure in the Home*, Mary B. Richardson, New Mexico College of Agriculture, State College, N. M.

A number of articles have appeared in different periodicals which use household recipes. An article by Crissey in the *Saturday Evening Post*, March 14, 1914, reports that experimental work has been done which shows that fruits cooked by steam pressure will make 15 to 25 per cent more jelly than when cooked as usual in a kettle or double boiler. An article by Grace Gordon Hood in the *JOURNAL*, August-September, 1915, contrasts the pressure cooker with the fireless cooker, and brings out some of the same points as those mentioned above.

JELLIED GRAPEFRUIT PEEL OR ORANGE PEEL

FANNY WALKER YEATMAN

Experimental Kitchen, Office of Home Economics, United States Department of Agriculture

The chief merit of the following recipe lies in the fact that the product has the consistency of jelly rather than that of hard candy.

Peel from a good sized grapefruit.....	138 or 140 gms. or about 5 oz.
1 cup sugar for making sirup.....	200 gms. or about 7 oz.
$\frac{3}{4}$ cup water (nearly).....	150 cc. or about 5 $\frac{1}{2}$ oz.
$\frac{1}{2}$ cup of sugar for rolling strips.....	100 gms. or about 3 $\frac{1}{2}$ oz.
$\frac{1}{4}$ teaspoon salt (approximately).....	2 gms.

Select light colored, heavy, smooth-skinned grapefruit or oranges which have a thick soft peel free from blemishes.

Cut into strips about $\frac{1}{4}$ to $\frac{1}{2}$ inch wide. Cook in 1 quart of water for $\frac{1}{2}$ hour. Repeat this three times, discarding the water after each cooking. The strips should then be tender, and must be handled gently to keep from breaking them.

Place in a small sauce pan (about 6 inches in diameter) the water and sugar and stir until the sugar is dissolved, then add the strips of grapefruit or orange peel and place the pan over the flame. Allow the contents of the pan to come to the boiling point, and cook rapidly for about 20 minutes, then place an asbestos mat under the pan and continue the boiling about 20 minutes longer, or until the sirup is all absorbed by the peel. Great care must be taken at this point that the sirup does not scorch; the strips of peel must be turned frequently. Use a fork in turning the strips and in removing them from the pan.

Place the peel on waxed paper until cool and then roll in granulated sugar. Use the flat side of a knife in rolling the strips. Let the strips dry out for an hour or two, then wrap in waxed paper and keep in tightly covered tin containers until used. This confection should keep in good condition for two or three weeks, in moderate weather.

The amounts of ingredients mentioned above usually make about 13 ounces of candied or jellied peel.

When the recipe given above is doubled it is necessary to cook the strips about 20 minutes longer, before the sirup is absorbed. When the amounts of peel and sugar are multiplied by four, increase the water, used in parboiling, only enough to cover the fruit well. When making the sirup, use 4 times as much sugar but only twice as much water. The length of time required for cooking will then be about 60 minutes, under the conditions described above.

The final product should be tender, jelly-like, and translucent; the skin should be soft. The pieces should be thick and juicy, not shrunken nor gummy. The outer coating should consist of distinct crystals, and should not "cake" or form a crust.

Showing the citrus growers of California how to make candy, chemicals, marmalade, and vinegar out of the lemons, oranges, and grapefruit that were formerly wasted has been the job of the Citrus By-Products Laboratory of the U. S. Department of Agriculture in Los Angeles.

A HOSIERY GUIDE FOR THE SHOPPER

ELLEN MILLER

The Merrill-Palmer School, Detroit

The shopper may have a definite idea of the kind of hosiery she wishes to buy, and yet fail to find it because she does not ask for it in correct terms. Or she may know the trade names without knowing the relation of the manufacturing process to the durability or appearance of the finished product. This list of hosiery terms with their definitions may help her to decide what she wants and to find it.

DEFINITIONS USED IN MANUFACTURE AND SALE

Cut hosiery. The material is woven in a long tube. It is then cut into lengths; the feet are cut and sewed on sewing machines. This cheap type of hosiery is almost obsolete.

Seamless hose. Any stocking knitted in a tubular form so that no seams are necessary.

Shaped hose. Hosiery that is knitted with a straight tubular leg and then stretched and pressed to shape in the finishing processes. Sometimes the stitch is made looser in the upper part of the leg to allow greater elasticity. This process of shaping generally determines the size of seamless hosiery, and explains the bagginess and the shortness of the foot after laundering. Cheapest type in common use.

Fashioned hose. Seamless hose knitted on a machine which shapes the garment by controlling the number of stitches. Distinguished by dart or gusset in calf of leg.

Full-fashioned hose. Knitted flat. They are shaped by controlling the number of stitches in leg, heel, instep, and toe, and are finally stitched from the tip of the toe to the top of the stocking. This is the best fitting and also the most expensive type of hose.

Mock-seam hose. This type of garment is knitted tubularly and then seamed down the back of the leg. This process, while it does not fashion the garment, imitates the effect of a more expensive type of stocking.

Looping. Loose, elastic finish which closes the tip of the toe and the bottom of the heel of a full-fashioned hose and of some seamless hose. It may or may not be of the same color as the hose.

Boarding. The process of shaping the finished hosiery by stretching over shaped boards, steaming, and drying. This is the process which

determines the shape and size of a "shaped" stocking and accentuates the shape of a fashioned or full-fashioned hose.

Split-foot. Foot made with a different material in the upper portion from that used in the sole. This was originally a white sole.

Lisle. Cotton yarn made by doubling together two threads, one spun with a right-hand and the other a left-hand twist. Firm, hard-wearing yarn.

Mercerized yarn. Yarn subjected to an alkaline bath and dried under tension. Mercerized yarn is more lustrous and has a greater affinity for dyes than yarn not so treated.

Gassing. Process of singeing the fuzzy ends from the surface of a mercerized yarn, thus leaving it smooth and lustrous.

Dipped silk hose. Hose knitted from undyed yarn and dyed after manufacture is complete—may be of silk; silk and cotton; or of silk, fiber silk, and cotton mixture. Not heavily loaded.

Ingrain hose. Dyed in the yarn. Heavily loaded. Lustrous and heavy. Durability varies greatly with individual who wears them and the care given them. Perspiration very injurious. Distinguished by looping, in heel and toe, of a color differing from the body of the garment.

Silk plated hose. Made of a two-thread yarn; the silk thread is thrown to the surface in knitting. Generally durable, although silk may rough up and wear off the surface.

Cashmere hose. Worsted yarn with a woolen finish. Fine ribbed, soft, and comparatively thin.

DOES NOT THIS APPLY TO ALL NATURAL RESOURCES?

"One who recklessly, defiantly, persistently, and continuously wastes natural gas, and boldly declares his purpose to continue to do so ought not to complain of being branded as the enemy of mankind. . . . It is not the use of unlimited quantities of gas that is prohibited, but it is the waste of it that is forbidden. The object and policy of that inhibition is to prevent, if possible, the exhaustion of the store house of nature, wherein is deposited an element that ministers more to the comfort, happiness, and well-being of society than any other of the bounties of the earth."—*Indiana Supreme Court.*

CHOOSING A WASHING MACHINE

Wherever two or three housekeepers are gathered together nowadays there is almost sure to be discussion pro and con of the various kinds of power washing machines. Though helpful to the woman who is about to buy a machine, such an experience meeting does not give her the complete information she needs to make her a competent judge of the various kinds as suited to her needs. Unfortunately the federal government and other disinterested agencies have not so far had the funds with which to make comparative tests of even the representative types of washing machines, and hence can not answer her questions from a basis of thorough-going research.

A group of Connecticut Grange women therefore decided to find out for themselves whether the electric-driven washing machine was economical and practicable for use in their community, where electricity costs 16 cents per kilowatt hour, and which of several makes would give best results. Arrangements were made with manufacturers whereby various types of machines were installed in homes and their efficiency scored by the committee on the following points: efficiency in washing; wear and tear on clothes; convenience of operation; durability; and cost of operation. Some of the machines were found so inefficient in cleaning clothes and to have such serious mechanical defects that they could hardly be called labor-saving devices, while others did their work thoroughly, quietly, and quickly. The highest score given by these Connecticut housekeepers to a machine was ninety-one.

This test was of course imperfect in many ways because conditions vary in different households and some women are much better mechanics than others. The results show, however, that the consumer need not necessarily accept the glowing statements of the advertiser of even so complicated a piece of household equipment as a power washing machine, but that groups of women can make practical tests which will aid them in selecting equipment from the bewildering array now on the market.

R. V. D.

EDITORIAL

Isabel Bevier. Anyone not in the family might think that the portrait which forms the frontispiece of this issue¹ belonged exclusively to the subject who furnished the inspiration and to the artist who was able to see the real concentrated essence of her and to record his vision in this enduring and endearing and marvelously beautiful form. But no, the whole home economics world is preening itself: she is ours. Ours from the time, more than 20 years ago, when she started the department of home economics at the University of Illinois, from the time, some years later, when Mrs. Richards told an anxious mother that the sanest course was at Illinois, to a recent meeting of the Association at which Dr. Langworthy expressed our united feelings in referring to her as the lady whom we all delight to honor and always miss when she is absent.

Perhaps no one has ever tried seriously to analyze Isabel Bevier. We are very proud of being really scientific in one part of our field, and really artistic in another. Here is an expression of the whole of us: an artistic analysis of our Dean. Louis Betts has looked beyond the teacher, beyond the executive, and has chosen, as he himself says, to portray the woman. The utter truth of this, which instantly strikes anyone who knows Miss Bevier well, stirs in one a new distrust of scientific analysis as an exclusive method of arriving at truth, a new realization of the need of striving for a vision of the whole of the object of one's observation; for how many people have been able to see clearly beyond the teacher, or the executive, whichever it was they came to know. And yet, one instantly feels, in looking at it, that this is the portrait of her very self, her essential sweetness, her utter lack of conceit, her real serenity, under all the vigor and vitality. One can even look deeper, and see something of the reason for the intensity with which she always attends to her "job."

Here's to her! May she long continue to stimulate and inspire us! And now that she has given up her particular, individual job, may she help us to see with clearer and larger vision our corporate job, to see how we may make home economics deliver its maximum contribution to the education of American women.

¹ The portrait of Isabel Bevier was presented to the University of Illinois, by the alumnae of the Department of Home Economics and friends, at the Recognition Service held May 20, 1921. It is printed through the courtesy of the committee on arrangements. Copies in color may be obtained from Miss Ada Hunt, University of Illinois, Urbana, at \$1.00 a copy.

The Cooking of Green Vegetables. The color of a cooked vegetable may be one standard of judging the desirability of a cooking process, but it is certainly not the only one which should be considered in our teaching. It is hard to reconcile the facts, which modern research in nutrition are revealing, with the methods of cooking green vegetables which are advocated by some textbooks and teachers.

It is true that a vegetable cooked in a surplus of water which is later discarded will have a milder flavor and probably a better color than one cooked in a very small amount of water. Masters and Garbutt¹ attribute the deterioration in color chiefly to the action, on the chlorophyll, of acids liberated during cooking. They found that during cooking hydrogen sulfid and probably also volatile organic acids were freed. When vegetables were cooked in steamers or in closed vessels with a small amount of water, the retention of those acids was increased and gave a darkened product. These writers advocate cooking the vegetables in an open vessel containing a surplus of rapidly boiling water (the water to be discarded later) to insure a maximum loss of volatile acids and a diluting effect upon the soluble acids, both of which might otherwise darken the color of the vegetable.

The other side of the question is presented in data on the losses of minerals and vitamins during cooking by their passage into the cooking water. As much as 50 per cent or more of the total ash of vegetables, and also practically one-half of the iron were found by Blunt and Otis² to be lost in the water in which the vegetables were boiled. The anti-neuritic vitamin commonly called the water-soluble *B* has been found by Miller³ and also by Whipple⁴ to pass into the cooking water to the extent of 36 to 70 per cent when quantitative methods for the estimation of that vitamin were employed. Parallel with these findings are those of Denton⁵ on losses of fuel value. This author found that from 15 to 60 per cent of the caloric value of boiled vegetables was lost.

¹ H. Masters and P. Garbutt. An Investigation of the Methods Employed for Cooking Vegetables, with Special Reference to the Losses Incurred. Part II. Green Vegetables, *Biochem. Jour.*, 14 (1920), p. 75.

² K. Blunt and F. Otis. Losses of Iron in Cooking Vegetables, *Jour. Home Econ.*, 9 (1917), p. 213.

³ E. W. Miller. The Effect of Cooking upon the Water-soluble Vitamin in Carrots and Navy Beans, *Jour. Biol. Chem.*, 44 (1920), p. 159.

⁴ B. K. Whipple. Water-soluble *B* in Cabbage and Onion, *Jour. Biol. Chem.*, 44 (1920), p. 175.

⁵ M. C. Denton. Changes in the Food Value of Vegetables Due to Cooking, *Jour. Home Econ.*, 11 (1919), p. 143 and 200.

Two of the many questions which come to mind when all these facts are considered are: first, is it not possible to cook vegetables in such a way that volatile acids are expelled to avoid discoloration and that the liquid will still be of such small volume that it can be served with the vegetable? Experimental cooking teaches us that there are often many ways of arriving at a good product. It is hoped that the literature on this subject will be increased by more experimental data soon. The other question is, does the ordinary American diet contain such an abundance of minerals and vitamins that we can afford such losses as we incur by pouring vegetable water down the sink-drain?

THE OPEN FORUM

A Piece of Home Economics Work. The *Vocational Summary* for April gives an interesting account of nutrition work being conducted by the Department of Home Economics, Michigan Agricultural College, for a group of Federal Board men in training in that institution. Fifty per cent of the 157 men enrolled were diagnosed as suffering from malnutrition. Several having arrested cases of tuberculosis were in dire need of special diet. Dean Mary Sweeny, Head of the Home Economics Department, took the matter in hand and, as a result, fifteen of the more critical cases were placed under the care of Hilda Faust, instructor in charge of the work in nutrition. In order that they may understand the treatment and follow the instructions given, the men attend a nutrition class. Meals are served to them at cost by the students in dietetics. The immediate result has been that these men have not only gained in general health, but will be able to complete their training which, without this help, might not be possible.

But this touches a local situation only. The time has come for home economics departments and people to ally themselves definitely with the larger health programs. It may be that the beginning will have to be made through educating the presidents and general faculties of their colleges, but most of all they will need to take counsel among themselves as to how their teaching can be made vital as well as academic. Students preparing to teach in the public schools must be inspired to take the place and responsibility for which their training fits them. With the general awakening to the importance of health education in the schools there is no room for the home economics trained teacher who allows her work to be limited to classes in "cooking and sewing."

A. R. V.

THE QUESTION BOX

Question: Why is beefsteak toughened by covering when sauteing while chicken under the same condition is made more tender?

Answer: A chicken used for sauteing contains a much more delicate connective tissue matrix than does the beef usually cooked in this way. Comparisons made between a very tender piece of beef, for example tenderloin, and chicken approximately one year old of equal thickness will show that these two will become tender in approximately the same time.

Question: Are phosphate baking powders as quick in action as cream of tartar powders when they come in contact with water?

Answer: Both phosphate and cream of tartar powders give off gas very quickly, the reaction beginning as soon as water comes in contact with the powders. The phosphate powders are combinations of sodium bicarbonate and acid potassium phosphate in some cases and acid calcium carbonate in others. These are both more soluble in cold water than cream of tartar, and, therefore, the reaction in the cold is completed in somewhat less time than when cream of tartar is used.

Question: What effect has vinegar in fat used for frying doughnuts?

Answer: The addition of vinegar to doughnuts will in no way affect the efficiency of the frying process. The smoking fat is sufficiently hot to drive off or decompose the organic acids contained in the vinegar. Acetic acid boils at 119°C. whereas the fat used in frying doughnuts is heated to 220°C.

Question: Does the pressure cooker with its high temperature make protein foods harder to digest?

Answer: Certain types of protein-containing foods, for example peas and beans, are rendered more digestible by cooking in the pressure cooker, the high temperature being more effective than the boiling temperature in dissolving the hemicelluloses. It is possible, furthermore, that the high temperature renders the protein of the bean (phaseolin) more readily digestible. Recent work has shown that cooking this protein for five minutes gave "detectable increase in digestibility" while cooking for three-quarters of an hour was apparently sufficient to produce the maximum effect.¹

Tough meats also may be made more readily digestible by cooking at high temperature, owing to the fact that the tough connective tissue is more readily hydrolized (gelatinized).² Egg white and cheese, on the other hand, would be less readily digested than if prepared by the usual methods.

¹ The Effect of Cooking on the Digestibility of Phaseolin. *Proc. of the Amer. Soc. of Biol. Chemists*, Dec. 28-30, 1920.

² See also pages 361 to 366 of this issue of the JOURNAL.

BOOKS AND LITERATURE

Standards of Living. A Compilation of Budgetary Studies. Bureau of Applied Economics, Washington, D. C., 1920, pp. 156. \$3.00.

This book brings up to date the summaries of budgetary studies published in earlier bulletins of the Bureau of Applied Economics, and there are added digests of later studies. For purposes of comparison there are also added the results of such early work as the studies of More and Chapin, made in New York City in 1907. A few of the headings will show the wide range of these papers: Minimum Quantity Budget Necessary to Maintain a Family in Health and Decency, made by the Bureau of Labor Statistics, 1920; Budget for Bituminous Coal Mine Workers, 1919; Working Man's Standard of Living in Philadelphia, 1918; Minimum Budgetary Estimate for Pacific Coast Workers, 1918.

Perhaps the study which adds most to our scanty knowledge of budgets beyond the working man's income is the Tentative Quantity and Cost Budget Necessary to Maintain a Family of Five in Washington, D.C., at a Level of Health and Decency, the aim of the study being to furnish information for the use of the Joint Commission of Congress on reclassification of salaries for government employees.

The great value of the papers here brought together can hardly be appreciated by those who have given the subject no special study. Out of many confused statements there emerges some certainty as to the quantity of things necessary to the maintenance of a family. For this end, close study by people of experience in actual conditions, an average and comparison of many such observations, and that judgment which knows how to vary

from the iron rule in the interest of the larger truth are all necessary. The pricing of the quantity budget is a mechanical matter easily adjusted to changes, but the fixing of standards once made may remain of more or less permanent value. These studies show the intelligence of the directing mind of Royal Meeker, the former chief of the Bureau of Labor Statistics.

Those who feel that such estimates must be largely theoretical will be surprised at the wealth of detailed study on which conclusions are here based.

The discussion of the number of rooms necessary per family is suggestive to those who have considered that no standard is possible. For the working man a little less than one room per person is found to be common. A valuable suggestion is made that floor space is a better basis of requirements than is the number of rooms; 550 to 660 square feet is thus seen to have great possibilities. It would be worth while to work out the possibilities of one room of ample proportions by the use of screens, sliding doors, folding beds, and other devices.

A depressing thing in the reading of these budgets is the monotony of life and of pleasures. Little of the creative seems to be possible. The moving picture is the sole form of amusement. It would be interesting to compare in this regard the life of the family in foreign countries living on the same amount of money. Another difference would probably appear: none of these families studied have savings except in the form of life insurance.

It is to be regretted that the price of this reprint of what were free publications is placed at \$3.00.

MARY H. ABEL.

Household Budget. Home Economics Bureau, Society for Savings, Cleveland. Distributed free to depositors; to others, 50 cents.

Sarah J. MacLeod, Director of the Home Economics Bureau, is responsible for this combination budget and account book which shows plainly the result of her practical experience in budget making.

It is not merely an account book, but a budget record as well, and, if used as directed, gives constant possibility for comparison between the budget as planned and the actual expenses. Clear, concise directions for use are given in the opening pages. Miss MacLeod makes it evident that a record of money spent is of little value unless used for study and as a basis for new and better plans.

Unlike the usual budget-making directions of five years ago, there is no suggestion that any definite percentages can be "ideal" when applied to varying incomes or conditions.

It is good to note that "Savings" is not given as a sub-heading, but is one of the six general divisions, and starts the list under which all of the expenditures are grouped. The sub-headings are clear and definite with little opportunity for misunderstanding. Where two or three forms of expense are entered in one column, one or the other is a fixed charge and easily subtracted from the total so that there is no necessity for confusion when making estimates for a new budget plan.

Miss MacLeod has carefully avoided that pitfall for the inexperienced, a column for miscellaneous or sundry expenses. Housekeepers will find few columns which they will not need to use or of which they will want to change the headings. There are sufficient blank columns so that expenditures for items not common to every family, as automobile, care of grounds, may be entered by themselves; clothing charges may be subdivided if preferred, and details regarding any one item may be kept until standardized and then again combined with the larger group.

There are many account books on the market, but few so flexible, simple, and at the same time so practical, as this. There is

little danger that the inexperienced will be afraid to attempt its use. The book shows the result of practice rather than theory.

Miss MacLeod's book solves a problem for many people who have for years crossed out suggested headings and written in their own, or found themselves obliged to combine records which they wished to keep separate. Yet even this will meet with objections, as some will prefer to keep their contributions to benevolence apart from church pledges. Every practical worker realizes that just as there are no ideal percentages applicable to every problem, so there are no ideal account books which will suit every housekeeper. That Miss MacLeod has succeeded in coming near to that ideal is a matter for congratulation.

S. AGNES DONHAM.

The Art of Spending and The Weekly Allowance Book. Published for Banks by The American School of Home Economics, 306 West 69th Street, Chicago. 10 cents each.

The Art of Spending takes up a discussion of budgeting, and gives detailed descriptions of the accounting check books for personal, household, farm, and office use, and also of the *Weekly Allowance Book*, all of which have been devised by the author. A list of helpful books is included. The pamphlet is intended for wide distribution and it should do much towards arousing interest in personal and family budgeting.

The Weekly Allowance Book is a small budget and expense book which carries accounts for thirteen weeks or one-fourth of a year. It has the advantage of being small enough to be slipped into either the pocket or the purse. The expenses are classified as Savings, Food, Clothing, Rent, Operating, Advancement, Luxuries, and Personal. Provision is made for the daily and weekly totals of the expenditures as classified. This book should make a special appeal to people who desire a weekly rather than monthly account system, and it should help these people to systematize their saving and spending.

SARAH MACLEOD

The Nursery School. By MARGARET McMILLAN. New York: E. P. Dutton and Company, 1919, pp. 356. \$4.00.

Nursery School Education. By GRACE OWEN. New York: E. P. Dutton and Company, 1920, pp. 176. \$2.50.

These two books are descriptive of the Nursery School Movement in England, a movement of special interest to those concerned with the nurture—that is, the hygiene and education—of children between two and five years of age. In so far as this group of young children is a matter of public concern in this country it is provided for almost exclusively by volunteer organizations, while in England it is provided for by the government. This provision, first made by the English government after the passage of the Fisher Bill in 1918, was largely the result of war conditions which threw into high relief the value of child life, and led to the establishment of the nursery school as the first step in the English educational system.

In her book, Miss McMillan, one of the pioneers in this movement, gives an *intensive* study of her nursery school, a joyous spot in a besotted part of London. She writes with the fervor and enthusiasm of the pioneer, the person of vision. Throughout its pages her book is suffused with deep emotion caused by the sacrificial death of her beloved sister and co-worker, Rachel, who succumbed to exhaustion in her effort to provide mothering for England's neglected children. Naturally the appeal is intensely human. Miss McMillan has put all she has and is into this work, vitalizing it with a personality distinctive for its charm and ability. As a consequence her nursery school is considered remarkable for its health record and for its social value. Educationally one may question her methods, but the fact remains that the children are wholesomely happy, and furnish the joy motive that runs throughout the book.

Miss Owen, writing from the standpoint of an experienced teacher, makes an *extensive* study of the nursery school movement, giving a clear idea of its history, purpose, and educational procedure. She is principal

of the Mather Training College, affiliated with Manchester University, and, as is interesting to note, received part of her training at Teachers College, Columbia University. Three specialists—two in the field of educational psychology, and one a physician—collaborate with her in writing this book, which is by far the best presentation of the matter yet published. It states that the free kindergarten was the immediate pioneer of the nursery school, and in a clear way notes the features in both kindergarten and day nursery most valuable in the nurture of young children. The appeal is to the intelligence rather than to the emotions. Educationally the book inspires confidence.

In a word Miss McMillan's book is especially valuable in arousing popular interest in the nurture of young children, while Miss Owen's book is the safer guide when it comes to actual work with children and students-in-training. Both books are full of suggestion and inspiration for those interested in demonstration nurseries connected with schools of household arts and science; kindergartens; day nurseries; "Little Mothers' Clubs"; training courses for child nurses; pre-school groups in private schools, playrooms, playgrounds.

These books are significant because they mark the educational approach to the pre-school period, a new development which has been long awaited. The medical approach has already been made with signal success. But the combination of the educational and the medical is needed if adequate provision is to be made for the nurture of young children. War conditions have forced England to make such provision. In this country we are only beginning to realize that to allow children to become handicapped in countless preventable ways before they enter school is an unpardonable wrong for an intelligent people to commit. All this is brought home to us with convincing earnestness by these two English women who point the way in this educational advance, so basic and far-reaching in its importance to individual and to national life.

ELIZABETH JENKINS.

The Conservation of Textiles. By HARVEY GERALD ELLEDGE and ALICE LUCILLE WAKEFIELD. Published by Laundry Owners Association, LaSalle, Illinois, \$1.00.

The Laundry Owners Association has constantly presented to its members, through the national and state association meetings and through its monthly publications, new formulae for bettering the work of the trade. Teachers of textiles and dyeing, as well as supervisors of hospital and school laundries, will gain much from these commercial publications. Unfortunately all are not within reach of the person out of the trade and it is for this reason we welcome the chance to purchase such a report.

The book is a report of five years' work in the Research Department of Mellon Institute, Pittsburgh, Pa. It is divided in to chapter headings—Fibers, Weaves, Mechanical Source of Damage, Corrosive Materials, —and ends with a comprehensive chapter and chart on Treatment for Stains.

The illustrations, made through a very powerful microscope, have great value in showing irregularities in cheap and dishonest fabrics, besides the reason for the short life of many.

The book presents the laundry man's study of the reasons for the heavy blame thrust by the housewife upon him rather than upon the manufacturer.

Often the short life of the fabric is due to poor weave, poor and irregular length fibres, and to the physical and chemical wear and tear of sunlight, dust, bad soaps, body excretions, to say nothing of the effect of bleaches and dyes.

L. RAY BALDERSON,
Teachers College.

More Recipes for Fifty, by FRANCES LOWE SMITH, was mislisted, in the Bibliography of the April JOURNAL, as a revised edition of *Recipes and Menus for Fifty*. *More Recipes for Fifty* does not duplicate the earlier book, but contains new material prepared to meet conditions arising from the war.

Breakfasts, Luncheons, and Dinners. By MARY D. CHAMBERS. Boston Cooking School Magazine Company. 1920, pp. 137, \$1.25.

This little book attempts to cover a good deal of ground, for its sub-title is "How to plan them, how to serve them, how to behave at them. A book for home and school." While it contains six pages on "the balanced menu" and eight pages of tables showing the caloric value of foods and their vitamine content, the book is essentially a book on table etiquette, and this on the whole seems to be correctly and clearly given. It is emphatically not a book for general school use, however, for the simple home service of a meal is hardly more than suggested, while minute directions are given for elaborate service. This is not in accord with the suggestion made in a recent number of the JOURNAL that in the schools it is time that we recognized frankly that home service must, under existing conditions, be generally of the service-without-a-maid type.

The book as a whole is not faddish, so one is somewhat surprised to learn that "it is a sign of ignorance of good usage to eat one's cereal with a teaspoon—a fact which girls in school, or even in college, are not always aware of." Nor is the suggestion that the breakfast napkins must be smaller than the dinner napkins very practical for most households. One wonders if the "unwritten law that a solid color of any kind (for a table cloth), with scalloping in a contrasting color or in white, is admissible for either breakfast or lunch, but a two-colored fabric is not to be thought of, still less a checked one" may not be a short-lived style instead; for immediately an exception is made of Japanese crepe in blue and white. On page 100 nearly half a page is devoted to forbidding one to lift a glass or cup by putting "even one finger inside." As the principle underlying the objection is not mentioned, however, one ignorant enough to need the reproof might serenely set the table in this way, thinking the objection was to being seen doing it; and nothing at all is said in regard to picking up a glass with one's fingers too

near the top, even although they are entirely "on the outside."

The book however will undoubtedly find its place with those persons interested in the niceties of etiquette.

MAHEL T. WELLMAN,
Indiana University.

Dehydrating Foods, Fruits, Vegetables, Fish, and Meats. By A. LOUISE ANDREA. Boston: The Cornhill Company, 1920, pp. 198. \$1.75.

This book discusses a method of dehydrating food without previous cooking that, it is claimed, may be successfully applied to a majority of foods. It also presents arguments for the use of dehydrated products. The directions for the "home hydration" of food are clear and specific, and should be easy for the housewife to follow. The apparatus for the household as well as commercial use is clearly described. The second half of the book is devoted to recipes for the use of the various dehydrated products.

Five Short Home Economics Plays. Written and presented by students in Oklahoma College for Women. Published by S. Deborah Haines, 1372 E. 57th St., Chicago, 1921, pp. 15. Ten cents.

These health plays were written by the Freshman home economics students in their English classes. They effectively demonstrate what can be accomplished by coordinating home economics work with other subjects in the school curriculum.

These playlets are one-act plays and would require about ten minutes each for presentation. "Little Potatoes" and "Fairyland and Real Life" could be used as illustrative material in nutrition class work. The other plays, "The Prodigal," "Foundation Stones in Home Building" and "Mother's Wise and Foolish Children" are especially adapted for use in home economics classes in upper grades.

GERTRUDE GATES MUDGE.

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COMPILED BY MARGARET NORTON

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NEWS FROM THE FIELD

The Fourth Annual Meeting of the American Dietetic Association will be held October 24 to 26 at the LaSalle Hotel, Chicago, Illinois. Miss Emma Gunther, Teachers College, is chairman of the program committee.

The present officers are: Mrs. Mary De Garmo Bryan, president; Ruth Wheeler, first vice-president; Rena Eckman, second vice-president; Lulu G. Graves, honorary president; Ellen Gladwin, treasurer; E. M. Geraghty, 801 S. Wright St., Champaign, Illinois, secretary.

The chairmen of sections are: Administration—Mary Lindsley, Manager Grace Dodge Hotel, Washington, D. C.; Education—Ruth Wheeler, Professor of Nutrition, University of Iowa Medical School; Social Service—Lucy Gillett, Head of the Nutrition Bureau, Association for Improving the Condition of the Poor; Dieto-therapy—Rena Eckman, University of Michigan Hospital.

The morning and afternoon sessions will be taken up with the work of the various sections, addresses along the specific lines of the work done, and round table discussions of the problems of each section. The evening talks will be of important general interest to all members.

The administrative section has been making a study of equipment, supplies, wages, food, and morale of employees. This represents the best experience of trained dietitians in institutions in all sections of the country, and will be presented in usable form.

The education section will present the work of its committees dealing with the hospital training of the student dietitian, graduate work for the dietitian, and the curriculum for teaching dietetics to nurses in the training school.

The social service section will give reports of studies of dietary customs of various nationalities, and will discuss the importance of special consideration of diet in any Ameri-

canization plan. The Cooperation of Social Service Dietitians in the Public Health Movement is the Round Table subject.

On the program of the dieto-therapy section there are a number of nutrition experts and the round table discussions are to include educational propaganda in tuberculosis sanitariums, State Board examination questions in dietetics, and a survey of activities in dieto-therapy.

This is an excellent opportunity for dietitians to get together, to know each other. The Chicago Association plans a tea for Monday afternoon, and the Monday evening meeting will be a dinner meeting. Numerous professional trips have been arranged for Thursday morning following the convention.

Let every dietitian plan to make this trip to the convention a part of her vacation. For dietitians in all fields the meeting will be filled with interesting information, stimulating associations, inspiration for a new year, and a deeper understanding of true professional spirit.

National Advisory Committee on Foods and Nutrition. Those who appreciate the importance of attacking the malnutrition problem in a concerted way will be interested in a meeting of the National Child Health Council's Advisory Committee on Foods and Nutrition, which was held in New York, June 4. The committee was formed in order that the Council might secure a consensus of authoritative opinion regarding policies, methods, and standards which are essential to the effective conduct of nutrition work.

The committee consists of twenty-seven members, of whom twelve are representatives of national organizations interested in nutrition, such as the American Home Economics Association, the Department of Agriculture, the American Red Cross. The

remaining members of the Committee are individuals selected on account of the fact that they have outstanding ability in this particular field. Seventeen members of the committee were present at the meeting, and the progress made was most gratifying. Dr. Joseph Goldberger of the U. S. Public Health Service was elected chairman of the entire committee, and four sub-committees were organized as follows:

Organization and Conduct of Nutrition Work: Lucy Gillett, chairman; Mary G. McCormick, Dr. Mary Swartz Rose, Anne Sutherland, Mrs. Ira Couch Wood, Grace Schermerhorn, Dr. Royal S. Haynes, Dr. Amy Daniels, Dr. Anna E. Rude, Mrs. Henrietta W. Calvin.

Training for Nutrition Workers: Dr. Mary Swartz Rose, chairman; Dr. William P. R. Emerson, Lucy Gillette, Dr. Lafayette B. Mendel, Dr. Agnes Fay Morgan, Dr. Samuel McC. Hamill, Dr. Ruth Wheeler, Margaret Sawyer.

Food Requirements: Dr. John R. Murlin, chairman; Dr. C. F. Langworthy, Dr. Graham Lusk, Dr. Henry Sherman, Dr. Lafayette B. Mendel, Dr. Joseph Goldberger, Lydia Roberts, Dr. E. V. McCollum, Dr. Alonzo E. Taylor, Dr. Fritz Talbot, Dr. H. R. M. Landis, Edna White.

Malnutrition: Dr. William P. R. Emerson, chairman; Lydia Roberts, Dr. Lafayette B. Mendel, Dr. John R. Murlin, Dr. Joseph Goldberger, Dr. Anna E. Rude.

Running a Near East Relief Orphanage. For three years Mr. Edward Perry has managed the orphanage at Igdir, Armenia, near Erivan, the capitol of the country. He built his future citizens on bundles of skin and bones, and had only seventeen cents per child per day as tools with which to do the building.

That seventeen cents was spent on vegetables, meats, milk, and cereals. The vegetables were made into a thick soup with a pinch of meat; the milk was canned milk from the United States; the cereals were made of grains which had been prepared for consumption by the most primitive methods.

"There was so little to eat," he relates, "that I thought the children would go hungry, and get thinner, if such a thing were possible. But I found, to my surprise, that they steadily put on weight, developed muscle, slept well, played and worked with vigor, and were on the road to becoming a crowd of as healthy, hearty youngsters as one may find anywhere. The reason for this development is expressed in two words—regularity and frugality."

The Annual Conference of the Association of Teachers of Domestic Subjects in England was held in the Bishopsgate Institute May 21, with Lady Askwith in the chair. Among the subjects discussed were: Course for Teachers of Domestic Subjects, by E. Gladys Clarke, Principal National Training School of Cookery, and New Methods of Approach to Domestic Subjects for the Day Continuation Schools by Mrs. Ridgeway, Principal of Hammersmith Girls' Continuation School.

London Continuation Schools. Day continuation schools which were opened in London in January enrolled 12,000 pupils, or 82 per cent of the first age group officially registered for such instruction. At the Whitechapel Day Continuation School 99 per cent of those registered were in attendance. This large initial enrollment is due to the active coöperation of the head teachers of the elementary schools and of the school principals who surveyed the industrial conditions and social activities of their districts.

French School For Hotel Workers. A three-year course in hotel work is being conducted at Grenoble, France, under the supervision of the Ministry of Public Instruction. The school is maintained by the French Government, and is open to men and women. The teaching staff consists of five graduate professors, five auxiliary masters versed in hotel work (including the management of a kitchen), and three instructors in foreign languages.

The senior home economics students at the **Kansas State Agricultural College** have recently had four weeks strenuous training in the preparation of meals.

For three weeks, dinner was served at the college to faculty members and their wives, at thirty-five cents a plate. The girls did all the planning and work in connection with the meals. The style of dinner and service was changed three times each week. Monday and Tuesday the English style of dinner (informal service with a waitress) was served; on Wednesday and Thursday the dinners were formal; on Friday and Saturday they were informal or family dinners, without a waitress. On the last two days one of the students acted as hostess, waited on the table, and did the serving much the same as it is done in the average home. The last week of the four was devoted to the planning and serving of formal and informal buffet luncheons.

At a meeting of the Council of the **Montana Home Economics Association**, held in Bozeman, May 30, the following topics were considered in round table discussions:

Plans for the regular yearly meeting next fall; state dietetic requirements for nurses; the high school dormitory problem; reasons why home economics work is considered one of the things which could be dispensed with temporarily under the present financial stringency; the promotion of branch and student associations; discussion of the Fess and Smoot bills and means for publicity; methods by which the State Home Economics Association can incorporate with the women's clubs of the state.

A **Home Economics Club** of fifty members has been organized at Stephens Junior College, Columbia, Mo. The purpose of the club is to acquaint the girls with the scope of Home Economics and the opportunities it offers. The club made a contribution to the Ellen H. Richards Memorial Fund as one of its first official acts.

"The Female of the Species." Recent information from the Bureau of Education concerning the salaries of home economics supervisors in 31 cities of over 100,000 population gives the following figures: The minimum salary of home economics supervisors is \$1500. About one-fourth of all supervisors receive between \$1500 and \$2000 per year; one-half receive salaries between \$2000 and \$2500; and one-fourth between \$2500 and \$5000. There is but one supervisor in the United States receiving \$5000. The salaries of supervisors of manual training vary from \$1900 to \$5000, with one-half of the men supervisors receiving between \$2500 and \$3750.

Daughters of the American Revolution at the annual session of the organization in Washington adopted resolutions declaring that the clearest vision of the nation recognizes the urgent need of honest work, systematic saving, and sane spending, and pledged the members to advance in every way the purchase of government savings securities as the surest means for the development of understanding of the value of money. The Daughters pledged themselves not only to make an individual practice of investment in government savings securities but to aid in the establishment of thrift banks and the introduction of thrift instruction in the curricula of all schools.

The **New Fifth Avenue Hospital** will be the first institution in this country to abolish the ward system. All its rooms will be private and single, and, because of the peculiar X-shaped construction of the building, every room will be open to light and air. One floor will be devoted to children's cases and will have two play roofs; all maternity cases will be segregated on another floor.

The institution is planned to meet the great and pressing need for a hospital for the "inbetween" class of people—neither the very rich nor the very poor. An employee will be able to receive exactly the same care and treatment as would be given to his employer, and the charges will be in proportion to their incomes.

The Mary Gay Theater and the characters of Judge Scales, the Dragon, and others have been originated by Stella Boothe, R.N., of the Mary Gay Studio, New York City, in order to get health facts over to children, especially to those in rural schools. Miss Boothe has two theaters, a small one which can be packed in a suitcase and demonstrated by teachers, nurses, and public health workers; and a larger portable one which she herself uses, giving demonstrations and telling her health stories to children. The characters, made of shellacked cardboard, are very realistic in design. Three of the six plays ready for presentation are Bed Time Adventure, Health Habits, Good and Bad citizens in the Land of Food. These demonstrations are under the auspices of the Child Health Organization of America.

The Farm and Home Bureaus of Broome County, New York, recently celebrated the tenth anniversary of the founding of the first County Farm Bureau in that state.

No small part of the program was the review of the work of the Home Bureau formed in connection with the Farm Bureau in 1914. The home economics extension work in New York State is carried on through the Home Bureaus, and there are now twenty-nine organized counties and others preparing for organization.

Coöperating with the County Farm and Home Bureau Association are the United States Department of Agriculture, New York State College of Agriculture, and the State Department of Farms and Markets.

Dr. Ruth Wheeler, has been appointed Professor of Nutrition in the College of Medicine of the State University of Iowa. Dr. Wheeler is a graduate of Vassar College and received her Degree of Doctor of Phil-

osophy in Nutrition from Yale. For the past three years she has been Head of the Department of Home Economics at Goucher College, Baltimore. Previous to this she was Associate Professor in the University of Illinois. One of her most discussed pieces of research was in connection with a study of a number of proprietary foods for infants.

The College of Medicine of the State University of Iowa has the distinction of having appointed the first woman, if not the first person, to a chair of nutrition in a medical college, and this new departure will be watched with interest. The relation of food to health has had long and varied attention from faddists, but, thanks to scientific research, this relationship is now so well established that the medical profession is recognizing the need for incorporating in their courses of training the very best that can be known upon the subject.

Dr. Wheeler will have entire control of the food department of the University hospitals, and will have charge of the courses in nutrition to be offered for the medical students, dietitians, and nurses. She will also conduct research.

During the entire period of the war, Dr. Wheeler served upon the National Committee on Nutrition Service which was responsible for the enrolling and assigning of dietitians for work in Army and Navy hospitals, both at home and overseas. For the past two years she has been Chairman of the Committee and has been active in all matters relating to plans for developing the nutrition activities of the Red Cross peacetime program.

Mary A. Lindsley is now manager of the Grace Dodge Hotel, in Washington, a commercial hotel for transient and resident women guests.

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PROCEEDINGS OF THE FOURTEENTH ANNUAL MEETING OF THE AMERICAN HOME ECONOMICS ASSOCIATION

Swampscott, Mass., June 27-30, 1921

THE PRESIDENT'S ADDRESS

MARY E. SWEENEY

Nothing could be more fitting than to open the Fourteenth Annual Meeting of the American Home Economics Association here in Swampscott, so near to the place where Ellen H. Richards spent her life, and, in the shadow of her great spirit, to recount some of the opportunities for service which have come to the Association in the past year. The year has shown that the opportunities which the war gave to home economics are still ours; that we are facing a more critical time than we faced during the war, for we stand at the turn in the road, so to speak, where we must either assume leadership in the movements concerned with the health of the nation or lose it altogether.

The opportunity which the call to the nutritional field has given to home economics is most compelling. This field of service is our responsibility and our job, and it is for us to help point the way to social and professional agencies. We must establish a larger number of vital contact points with both the medical profession and the social service world. We must win their confidence and, through our hearty coöperation, demonstrate the place which we should fill in the development of the health program. The home economics profession should be represented at every state medical association, at every public health conference, at every meeting concerning child welfare, and should be a part of every social service group. If we are to render the fullest service in the nutritional field, we need both the medical and the social points of view.

Nothing has given the women who compose the home economics profession of this country so great satisfaction as the appointment of Dr. Ruth Wheeler to a chair of nutrition in the Medical College of the University of Iowa. She has won the first trench in this recognition, by the medical profession, of the contribution which home economics can make to medical training; we must not leave her alone to hold the lines. We must see that other women are trained as this field develops and so trained that there can be no question about their ability to fill such professorships.

Those of us who are studying national movements find three in which home economics has a definite contribution to make. They are in child health, child care, and child feeding; in the functioning of education in the problems of life; and in the forces which are threatening the integrity of the American home. Trained investigators are trying to think through to a solution of these problems. A world-wide interest in the child brings at once to the fore-ground all the basic problems of the home, and, if ever in its history home economics is to be challenged, it will be within the next few years.

When will nutrition be as well-established a part of general education as arithmetic and algebra? When will a fundamental knowledge of textiles be as integral a part of one's knowledge as geography? That hour cannot come until we so vitalize and energize our subjects that they cannot be omitted. When, as a group, we get a vision of the pivotal points on which home economics is based; when we apply to all our methods the acid test of reality, we shall not have to persuade school authorities to introduce a course in home economics, but will find that the door swings wide for our entrance.

I am glad to report to you that as an Association we have been establishing contacts with other groups of professional workers. We have affiliated with the General Federation of Women's Clubs, The League of Women Voters, The Social Workers Exchange, the Y. W. C. A., the Y. M. C. A., the National Housing Association, The American Social Hygiene Association, The American Academy of Political and Social Science, the American Dietetic Association, the National Child Health Council.

A forward movement of the Association is indicted in the backing which has been given to the home economics amendment to the Smith-Hughes Law. The assistance which has been rendered by the joint legislative committee in Washington has been invaluable. This means not only legislative support, but that every women's organization has

swung its power behind the amendment and, in so doing, has become interested in the work of our Association in the interpretation which home economics gives to life, to home making, and to child care. The state supervision of vocational home economics, extended as it is to every state, has been a potent factor in securing better standards of work and in educating school authorities to better ideals, both of work and equipment.

The developing of all lines of extension work has meant that by a thousand county home demonstration agents home economics is being sold daily to the individual woman and made to function in problems of her individual home. While there is little opportunity to view the cumulative effort of these agencies, so powerful are they that in due season there can be none to doubt their effectiveness.

The recognition by the commercial and industrial world of the contribution which the woman trained in home economics can make to standards, to morale, and to improvement of service is something of which the Association can justly be proud. The fact that great commercial concerns are placing the testing and development of household equipment in the hands of the home economics women marks a new era in the recognition of the training which our Association represents.

As an Association in this period of social industrial and economic reconstruction we need to be reborn into a real democracy of ideals, of standards, of outlook, and of occupations. It seemed inevitable that, in the developing of home economics as a profession, a large part of its activities should remain in the class room. Today we are recognizing that home economics is not only in the class room, but in business, in the press, in the hotel, in the hospital, in social service, and in the home. Home economics is not purely a matter of education but equally a matter of home and personal application. In this hour of our opportunities there are three near objectives. First, to become an integral part of the general educational system, i.e., as a professional group to develop the kind of work in the class room which functions in any American home; to make the school lunch a part of education as well as a convenience; to keep step with the general progress which is being made in all lines of elementary, secondary, and college education. Second, to broaden the home economics field so as to give prestige, equal to that of the teacher, to home economics women in business, in hospitals, in extension service, in hotels, in industry, in visiting housekeeping, and in the American home. The third objective is to develop a professional sentiment among the members of the Association, to give them the same pride in

being a member of their Association as the physician feels in being a member of the American Medical Association, or the engineer in being a member of the Engineering Association. There are two ways of doing this; one is to make the voice of the JOURNAL the voice of the Association. How many of us dare ask ourselves what we have done in the last year to make our JOURNAL a success? Until we have done all in our power to make it represent the things in which we, personally, believe, we have no right to criticise it. The second way of gaining professional sentiment is through regional organization. When each state has its representative on the Council and each region has its representative in an executive group of the Association, when every state member is a member of the national Association, we shall have the right to be boastfully proud. Not only will regional organization give better professional sentiment, but, I believe, it will give interest and power to the state organizations.

It is apparent that, in the training of young women in home economics, we have failed to acquaint them in college with an appreciation of their professional association. If it takes four years to train a woman in home economics, it should also take four years to train her for effective membership in the American Home Economics Association. There are at this time about ten thousand women, trained in home economics, who are engaged in some line of its practice in America; twelve hundred, or one in eight, are members of the American Home Economics Association. Our objective is to win the other seven for the organization in which we believe, the organization which represents the standards of our professional life, the organization of which we are a part and which is a part of us.

It is my privilege to make to you this report of progress and promise and to open formally the Fourteenth Annual Meeting of the American Home Economics Association.

Editor's Note. All general session addresses, in our hands as we go to print, are given in full. Limitation of space makes it necessary to print papers presented at section meetings in abstract form, in this number. These abstracts are, in the main, those submitted to the Pen and Press Committee during the meeting. A number of these section papers will appear in full, in later issues of the JOURNAL.

GENERAL SESSION

June 28

C. F. Langworthy, presiding

THE NEED OF FURTHER INVESTIGATION OF THE EFFECT
OF COMMERCIAL AND HOUSEHOLD PROCESSES ON THE
THE VITAMINE CONTENT OF FOODS

JOHN R. MURLIN

Chairman Committee on Food and Nutrition, National Research Council

The significant term in the subject of this paper, "vitamine," represents the third or perhaps the fourth great concept in nutrition which has been achieved by physiologists with the help at times of pure chemists and physicians and other practical folk like yourselves. The first was the energy concept. Yes, the first historically; for Lavoisier, you remember, discovered 135 years ago the identity of combustion in the animal body with combustion in the inanimate world. This very promising vein of discovery was almost lost sight of when Lavoisier was beheaded in the French Revolution after pleading in vain for two weeks respite in which to complete a piece of scientific work. Who knows but, if those two weeks had been granted, Lavoisier might have realized his ambition to prove the agreement between heat measurements as calculated and as directly measured in the human subject. It is almost certain that he would have accomplished this great aim if he had lived ten years more; for he had already secured approximate agreement with the guinea pig, and the work for man was all planned out in his mind. As it was, that achievement goes to the credit of Rubner and of Atwater quite 100 years later. The recent discoveries of Armsby and Lusk and Benedict in this country are worthy successors to the achievements of Lavoisier.

The second great concept was that which began with Liebig who gave us our first rational classification of the foodstuffs. It was continued and amplified by Voit and Emil Fisher, who gave us the true significance of protein in nutrition, and has been fittingly rounded out by Folin and others, who have taught us the meaning of the various nitrogen fractions, first, as the end products of metabolism, and now as constituents of our life blood.

The third concept, that of the place in nutrition of the inorganic elements is more difficult to accredit properly. There is no single investigator who occupies the place corresponding to that of Lavoisier in

energy metabolism, or to E. Fisher in knowledge of the proteins. But we have no difficulty in recognizing the modern masters of this subject, men like Sherman, Forbes, and McCollum, to speak of Americans, or Hopkins and Cathcart in England. Here also we must admit to the noble company several physical chemists, like Bayliss in England and Lawrence Henderson in this country, who have helped us to grasp the real meaning of acid-base balance and the mechanism by which the H-ion concentration is regulated in our tissues very nearly to the point of neutrality.

The fourth concept, that of the vitamins, is less than a quarter century old. Beginning with Eijkmann in 1897, it has been at once the most engaging, and perhaps withal the most practical, from the standpoint of health, of any of these concepts. The story is too new to require repetition. Many of you are more conversant with the development of this subject than is your present speaker. Several of your members are active workers in the field and have notable observations and discoveries to their credit.

It would be interesting, had I the time, to dwell upon the intensely dramatic, I might almost say the romantic element in some of the great advances in the science of nutrition. Imagine the dramatic significance—it could not have escaped his apprehension—when Lavoisier realized that he had proved the identity of combustion in his own body with combustion in the candle flame! Voigt you remember speaks proudly of the feelings of awe and exultation when the respiration machine which Pettenkofer and he had invented began to work and they saw the physiological processes of their own bodies unveiled before their eyes. Not less dramatic are some of the incidents connected with the discovery of vitamins. Funk has been criticized for choosing a high-sounding name for the substance which he had isolated from rice polishings, and from yeast. Nevertheless, the name has come to stay, and I venture to predict that after we have learned the exact chemical nature of fat-soluble *A* and water-soluble *B* and *C* or, as Drummond proposes we should call them, vitamin *A*, vitamin *B*, etc., we shall continue to call them, as old friends, by the good “old” name of vitamins.

Now as members of an honorable order of nutritionists some of us have grown a little anxious about certain knowledge which has come to us, and we are not quite certain what we ought to do about it. Some bolder spirits have raised a note of genuine alarm, and some feel that we ought to gird ourselves as true knights of St. George and go forth to slay the monster of greed and stupidity, so plainly visible to all of us, in the

character of the unscrupulous food manufacturer, who, in the process of making food attractively white, or attractively handy, or attractively this, that and the other to increase his sales, has stupidly or avariciously robbed it of real nutritional value.

Let us examine the situation dispassionately for a moment and see whether there is cause for real alarm. Is our food actually injured by domestic and commercial processes of cooking, sterilizing, pickling, or curing? Some of the evidence is familiar to you. Fat-soluble *A*, the vitamine necessary to proper growth in our children, is mainly if not totally destroyed by heating to 120°C. with stirring or aeration, in four hours. This means you cannot treat milk or butter in this way and have any of the *A* vitamine left. But is milk so treated commercially or in domestic cooking? Very rarely if at all. There is as yet no perfect agreement among experimenters regarding the ordinary processes of cooking, evaporating, or drying milk, but I believe if you have followed the subject you will agree with me that the weight of evidence is that only the antiscurvy vitamine, if any, is injured, and Hess has reported actual cures of scurvy with dry milk.

McCollum and Davis, you remember, thought they had proved injury to the nutritive value of casein by heating, but Hogan took sharp issue with this view and he has been supported by the more recent work of Gibson and Concepcion, and by Daniels and Loughlin. Long heating does injure by precipitation of $\text{Ca}_3(\text{PO}_4)_2$, but apparently not by destruction of vitamine *B* any more than of vitamine *A*.

And now comes a curious fact. Anything which bleaches, which destroys the yellow pigment, according to the researches of Steenbock and Boutwell, and of Drummond, does injure the fat-soluble vitamine. How remarkably this confirms our instinctive distrust of food which has lost its good color! Is not this the clue to judge of the injury to the leafy vegetable and tubers which contain fat-soluble *A*? It always has been the method of judging food, and needs merely to be supplemented by barring the artificial coloring of manufactured products to cover up the loss of natural color through commercial processing.

As for the injury to water-soluble *B* in other foods than milk there is now definite evidence that pressure-cooking, and even ordinary boiling if too long continued, does injure the vitamine. Chick and Hume, Delf, Miller and Whipple, all women be it noted, have shown that cooking extracts the *B* vitamine, and from 40 to 70 per cent of it is found in the water with which the food is cooked. Here again our ordinary senses, long-trained, serve to protect us. How readily we recognize the over-cooked

taste—"cooked to death," as we call it, and that is a very significant phrase. I venture to predict that pressure-cooking will not be generally adopted even under the lure of greater economy any more than the fireless cooker has been; for the food has very often that over-cooked taste which we have learned to distrust. Whether in *all* cases loss of yellow pigment means destruction of the A vitamine, or loss of flavor means loss of B, will require further investigation.

Coming now to water-soluble C, we have learned through the researches mainly of English and American investigators that it is injured by heating, aging, drying, and by alkalization. Nevertheless there are exceptions; for, as I have noted, drying of milk which violates all but one of these rules may not destroy it entirely. You are all familiar with the work of Givens in the Yale and Rochester laboratories. This work, not all of it yet published, shows clearly that practically all of our common vegetables and fruits suffer loss of vitamine C by drying. The exceptions are tomatoes and oranges, the very fruits which are richest in this nutrient factor. Hess has shown that ordinary canned tomato or the juice is quite as efficacious as orange juice for the cure or prevention of scurvy, and Givens has demonstrated that the vitamine is fully potent in tomatoes which have been canned for two years. Ordinary cooking injures the vitamine to a degree. Cooking cabbage, for example, for 1 hour reduces its antiscorbutic value anywhere from 70 to 100 per cent, depending directly upon the temperature; boiling potatoes robs them of vitamine C to an amount depending directly upon the time; and so on.

Probably every war which the world has known, if it continued for as much as one year, has been accompanied by scurvy in the army and often in the civilian population. Certainly this is true of all modern wars. In our own history it was particularly true of the war of 1812 and the Civil War. The Spanish American war did not last long enough to produce scurvy and, only less fortunately, the army had recently adopted canned tomatoes as a component of the travel ration. In the World War there was scurvy and plenty of it in the Indian forces operating in Mesopotamia, the Italian, and even in the French Army; but not a single case, so far as I have heard, in the U. S. Army. Canned tomatoes were a regular component of the garrison and field rations.

The war brought us face to face with many nutritional problems. In the army we were made to realize the hazard of supplying the army in France large quantities of dried and canned foods. This, in fact, led to the inauguration of Givens' work for the Government on dried vegetables. We ought to have a systematic and continuing study of the same kind,

on all commercially prepared foods, with a view to pointing out those methods which do injury to the vitamins or other nutrient factors. For it is evident to you that if ordinary cooking injures or removes vitamins *B* and *C* from fruits and vegetables, and anything which bleaches deprives the same or other foods of vitamin *A*, there is clearly a potential menace in the consumption, especially by poor people who must "live out of cans and sacks," of large quantities of package foods.

You have probably heard of a new process for making bread by washing the whole grain of the wheat until all dirt is removed, and soaking until the bran is loosened and separated, then grinding directly, adding fat, salt, sugar and yeast and mixing into a sponge. What an economical and nutritional advance this would be, to cut out the whole process of milling, with its decortication, degermination, and devitaminization of our most important cereal. It is my understanding that the new process is now being tried out by a large baking firm in Montreal. I would recommend that, as teachers of home economics, you watch for the results of this experiment and be ready to encourage the general adoption of the new method, should it prove to be, practically, all that it promises to be, theoretically.

You often hear the excuse that "it does not matter much if a vitamin is diminished somewhat in a particular food-product, for example white flour; for if you eat enough green stuffs and drink plenty of milk, the white bread will not hurt you." But suppose all our food manufacturers made the same plea. "My food will not poison you if you eat plenty of fresh vegetables." That is the excuse already offered for polished rice, highly-milled corn meal, canned meats, and I do not know how many more. Have we not a right to secure our foods with all of the nutrient values preserved in them, if possible? Of course, a certain amount of heat is necessary to sterilize, and, the more heat employed, the more surely a food will "keep," i.e., remain free of bacteriological spoilage. But Rossi and others claim that sterilizing in hermetically sealed containers does not injure the vitamin content of foods so much as heating in open containers. It is obvious that much more investigation is necessary, the object of which would be, not so much to prosecute the unscrupulous manufacturer (for his number I believe is not very great), as to indicate where injury is being done, and to create the desire for improvement. In this investigation we must not infer too much from a mere trace of injurious effect; for almost anything done to food from the time it is plucked or harvested or slaughtered reduces its nutrient value to some degree. To find our foods in the city not so fresh and appetizing (and we know this means not so

"vitaminous") is the price we must always pay, perhaps, for preferring city life. A reduction of a few per cent in the capacity of a food to protect a guinea-pig from scurvy, or to promote the growth of a white rat, should not be accepted as proof that we are all about to die of deficiency diseases. Let us leave that sort of exaggeration to the column-fillers and syndicate writers. But there should be (and I believe the great majority of food manufacturers would welcome it) a thorough-going search for significant injury to the nutrient values of our foods.

After such an investigation, perhaps it would be timely to ask Congress for an amendment to the Pure Food Law to the effect that any food process, seeking the protection of our patent or copyright laws, should be obliged to establish its innocence as regards injury to the vitamins. This is the age of prevention in medicine. We cannot afford to let a whole section of our population become the victims of undernutrition or malnutrition, either through their own ignorance, or through the cupidity of food manufacturers, as happened in the case of pellagra. We need continuing effort along educational lines, and we need much more information in certain directions which I have tried to indicate.

I wish to close by directing your attention to the program of research on national nutrition prepared by the Committee on Food and Nutrition of the National Research Council. I am authorized by the Council to solicit your endorsement of these projects; for we need the moral and intellectual support of such organizations as yours, as well as the financial support which I feel we are going to secure as soon as business conditions have become stabilized.

On the subject of vitamins, and the need for further research regarding the effect of commercial and household processes on their integrity, the Committee has this to say of its project:

"The purpose of this investigation is to make a systematic survey of the occurrence of vitamins, with a quantitative valuation, if possible, in all of our natural food products, and to learn the effects on the qualities of foods with respect to these factors of canning, preserving, pickling, drying, aging, and other treatment to which foods are subjected in household or commercial use.

"The sale of special foods, advertised rich in vitamins, is becoming an extensive and profitable business, and these should be tested on the start to determine their real and relative value."

The subject of nutrition is just beginning to receive the recognition it deserves in relation to the prevention of disease. As our pamphlet on national nutrition points out, "Members of the International Health

Board agree that the prevention of tuberculosis is in a great measure a dietary problem," and that "a very large number—probably more than 50 per cent of all the children in the United States—suffer from rickets at some time during infancy or early childhood as a result of improper feeding." Are the foods available always wholesome? Should we not have as the cheapest and commonest of our foods, the food which everybody eats, namely bread, the most wholesome article of all? Our children are entitled to health. They cannot have it unless we look after their foods.

THE PRESENT DYE SITUATION¹

FREDERICK E. BREITHUT

Chief Chemist, The Calco Chemical Company

The synthetic coal-tar chemical industry was born in England, reared in Germany, and will attain its full maturity in these United States of ours—if we are intelligent. But "if we are intelligent" is a large IF. For the present situation is a critical one and has all the usual elements of the drama,—there are plots and counterplots, connivings, economic necessities, technical difficulties, international complications and the surging motifs of patriotism, hatred, and passion.

The story of the treasures hidden in a lump of coal has often been told. We all know that coke, gas, ammonia, and coal-tar are the primary products of coal distillation. The fascinating potentialities of the black sticky mess called coal-tar are also generally known. From this source, the chemist has wrested the most delicate perfumes, the most exquisite flavors, all the colors of the rainbow, explosives, poison gases, tanning materials, resinous compounds like bakelite, solvents, rubber accelerators, photographic developers, paints, roofing materials, road binders, disinfectants, motor spirits, and drugs to soothe and heal the sick.

The United States has the largest coal deposits in the world. Nature's lavish liberality in providing us with this basic raw material led us to squander it with the ruthless recklessness of a spendthrift. Before the World War, the greater part of our coke was made in the wasteful beehive ovens. In the quarter century preceding the World War, we threw away in tar and gas, reduced to coal equivalent, an amount equal to over 300,000,000 tons of coal, over \$400,000,000 worth of ammonia, and over \$500,000,000 worth of benzol products.

The demands of war electrified us into sane action, with the result that 60 per cent of the coke produced in the United States in 1920 was

¹ Condensed form of the address given.

made in by-product ovens, thereby conserving, for the use of the industries just enumerated, ample quantities of the raw materials needed for the making of dyes, drugs, flavors, perfumes, and the other kindred final products of the coal-tar chemical industry. Let us hope that the day is not far distant when the bee-hive oven will be an historical curiosity along with the stage-coach and the spinning wheel.

Notwithstanding our great natural wealth in coal, the United States was slow to develop a coal-tar chemical industry. It is needless to dwell on the reasons for this. Aside from our own lack of interest, certainly the largest single factor was the German determination to dominate this field of industrial activity at any cost.

Then came the World War. And with it came the staggering realization that we Americans, with all our natural resources and industrial wealth, were impotent to prosecute war because, above all things, we lacked a coal-tar chemical industry. The German dye plants were indeed "potential arsenals" which they rapidly energized into explosive factories and poison gas plants. But we Americans had neither plants nor tools, equipment nor experienced men. For a brief time, we groped in helplessness to build up in months what should have taken decades of daily thinking and effort.

How this chaotic situation was met is such recent history and the record is so plain that it is needless to repeat it. American chemists and engineers plunged into the solution of the problem with such energy and ability that eighteen months of concentrated effort found us ready to face the foe. Just as we reached a point at which we could hurl back at the Hun the terribly effective means of offense which he had thrown at us, the war ended.

We had lost much. But we had gained one thing of inestimable value. We had here in our own United States the beginning of a dye industry.

The United States Tariff Commission recently issued its Census of the Coal Tar Chemical Industry for 1919. In 1919, there were in the United States 214 manufacturers of dyes and kindred coal-tar chemicals. The total output of dyes was approximately sixty three and a half million pounds, valued at about sixty seven and a half million dollars. The production in 1919 exceeded, by 38 per cent in quantity, the imports during the fiscal year before the war—1914. An outstanding achievement of the year was the production of 14½ million pounds of a single color—sulphur black. Another notable achievement was the production, during 1919, of synthetic indigo in amounts exceeding our pre-war import. This dye, which ranks second in consumption in the United

States, ranks first in world consumption on account of its large use in China.

Classifying dyes according to the method of application on the fiber, we find that, in 1919, the United States produced more direct dyes, acid dyes, sulphur dyes, mordant dyes, basic dyes, color lake, and spirit soluble dyes than the imports of 1914. The only class of dyes in which we are still backward are the so-called vat dyes. In 1919 the quantity of vat dyes, with the exception of indigo, which is the most important, was still inadequate for domestic needs, the production being about one-fifth of the pre-war requirements. However, fundamental developments in this field are under way and we are assured of an increased output of vat colors during 1921. The manufacture of these dyes requires the highest technical skill, long research, and a large investment of capital.

Are these American dyes *really* as good as the German dyes? Is it not true that we Americans have a belief that German coal-tar chemical cerebation is of an extra-special super-mannish variety? That this belief is only a superstition must be apparent to any fair-minded human being who contemplates dispassionately the American achievements of the last five years. But you are thinking of all the cases of fading, crocking, streaking, and rubbing that have taken place in our textiles, of our flags that looked like dilapidated dishrags after a few days of exposure to the elements. We had these coloristic misfortunes at the beginning of the war because we tried to put wool dyes on cotton, cotton dyes on silk, and silk dyes on wool. No dye has ever been discovered which is fast for all purposes. Dyes are chemical individuals or mixtures of chemical individuals and their properties are the same whether they are made in Germany, France, England, Italy, Switzerland, Japan, or the United States.

In 1916, when our markets were stripped of dyestuffs, an American hosiery manufacturer unwittingly bought, at a fancy figure, a German-made black dye intended for casket cloth. Casket cloth is not usually subjected to sunlight, washing, acid, or rubbing. Imagine the results when this dye was used on stockings! This was a German-made dye, but its unsatisfactory behavior resulted in the conviction on the part of many good American women that "those American dyes are so unreliable."

A red and white table cloth was returned to Jordan, Marsh & Co., in Boston, because, after its first trip to the washtub, the dye bled so that the red lost its brilliancy and the white was stained an unpleasant

pink. For many years the dyestuff used for this identical work has been Turkey Red,—a dyestuff that has been made in this country for some time, “of standard quality, in necessary quantities, and at a reasonable price.” But the dyer substituted a dye which on cotton goods is not fast to washing.

A certain carpet manufacturer making a standard rug, with a bright blue center, refused flatly to buy American-made alizarine blue, S A P, at \$8 a pound, and substituted a dye which the dye salesman and the manufacturer knew was notoriously fugitive for the purpose intended. The fugitive dye cost \$1.75 a pound. The difference in the cost per rug in the use of the fugitive in place of the fast dye was 21 cents. The selling price of this particular rug had been raised by the manufacturer from \$50 to \$125. Remember, a profiteer’s excuse that American dyes are unreliable is not necessarily valid proof that a suitable American dyestuff is not available for his use.

These few examples² could be multiplied many times but the few instances cited are sufficiently typical to be illustrative of the general condition. In every case, the fault lay, not with the dye itself, but either with the use of the wrong dye for the purpose intended or some other factor having nothing to do with the quality of the dyestuff. No, German dyes are not especially endowed with supernatural powers. American dyes are their equal in every regard, but the right dye must be used for the right purpose.

Another question which is frequently asked is: “If pending legislation is enacted, what is to prevent a monopoly in the American dyestuff industry with the public at its mercy?” In the first place we have been building up the American dye industry, during the last five years, under a system which it is proposed to continue. Has a monopoly developed? If you will glance through the report of the Tariff Commission previously referred to, you will find that there are 214 manufacturers of coal-tar chemicals in the country. Orange II, one of this season’s popular colors, is made by 14 manufacturers, some very large and some very small. They are all selling against one another in open competition. Fast Red A is made by ten manufacturers. The number of manufacturers making other large tonnage dyes, in many cases, exceed those just referred to.

Again, let us try to visualize what this dye monopoly would amount to, even were it conceded as a possibility for the sake of the argument. The value of the 63,402,194 pounds of dyes produced in 1919 was \$67,598,855, an average of \$1.07 per pound. The consumption of dye-

² The examples are taken from “Drug and Chemical Markets.”

stuffs in this country is approximately 60 million pounds per annum. The present cost—and costs, by the way, are constantly coming down—of the dyestuff necessary to color a suit of clothes is about 50 cents, and the average cost of the dyestuff in a dozen pairs of socks is perhaps 2 cents. Each of us Americans probably spends less than \$2 per year for the dyes in his clothes. The value of the dyestuff itself is almost negligible in comparison with the cost of the textiles or other materials which dyes are used to color. In fact, industries to the value of 3 billion dollars are directly dependent on dyes. It may not be too vigorous an exercise of one's poetic fancy to call dyestuffs the "vitamines" of the textile industries.

I think the men and women of America can be trusted not to cast aside the achievements of the last few years. Professor Marston Taylor Bogert of Columbia University has summarized what the loss of this industry would mean to us. In words of profound wisdom and prophetic vision, he says:

Let us understand fully what the curtailment or abandonment of this industry is likely to involve, for it is not so much the amount of money involved, although that is considerable, as it is the bearing upon our life as a nation that counts. Its immediate consequences, some of which are making their appearance even now, may be briefly recapitulated as follows:

Thousands of unskilled laborers thrown out of employment.

Large numbers of specially trained technical experts forced to seek other means of livelihood, and the economic loss involved in scrapping the experience gained in the dye industry.

Abandonment by the manufacturers of all plans for development and expansion, and the closing of plants now in operation.

Fewer students for the courses in chemistry at our educational institutions.

Termination or reduction of research work, both in the laboratories of the industry and in cooperative investigations with educational institutions, with all that this implies in retardation of the development of our science at a time when the world is looking to us to take the leadership.

Inability of teachers of applied organic chemistry to give their students up-to-date information in the field of synthetic dyes, through loss of personal contact with the manufacturer, and an inevitable resulting dependence upon the ancient history of the average text-book of industrial chemistry.

Subjugation of our great textile industry, and of other industries using dyes or dye intermediates, by foreign manufacturers, and, in the event of our being cut off from such supplies by another war, once again to be face to face with a famine, not only in the dyes but in all other coal-tar products.

Should we be one of the belligerents, there will be but few dye plants available for conversion to munition manufacturing (be it explosives, toxic gases,

smokes, incendiaries, or what not), and no reserve of trained men to take charge of such operations.

The world markets open to other nations will be inaccessible to us.

Fellow Americans, we are at the cross roads. I am speaking to you about the *present* dye situation. Do you want an America helpless or an America strong, self-sufficient, ready to meet its requirements in peace, and ready, if need be, to defend itself from outside attack? The issue is clear. What is your answer?

PLANS FOR TEXTILE RESEARCH UNDER THE NATIONAL RESEARCH COUNCIL

MIRIAM BIRDSEYE

Chairman Committee on the Standardisation of Textile Fabrics

Two years ago the Textile Section of the American Home Economics Association appointed its Committee on the Standardization of Textile Fabrics, whose purpose was to secure the coöperation of associations of manufacturers, retailers, and jobbers in studying minimum standards of wear for certain of the staple fabrics that enter largely into the wardrobe of the family of average means, and later, in placing on the market fabrics that met or surpassed these standards, identified in such fashion that the consumer desiring to get the best value for her money could recognize them at sight or call for them by name. While the plan originally applied to yard goods, it was believed that it could ultimately be extended to ready-made garments. It was the belief of the Association that through the thousands of teachers of textiles and clothing in schools, colleges, and the extension service, through home economics sections of women's clubs, and through the women's magazines, it could bring the idea of minimum standards before the girls and women who buy clothing for themselves and their households, and thus create a demand for goods so identified, as soon as they could be placed on the market. Last year this Committee made a study of the staple fabrics most commonly used for such purposes as women's and children's underwear, women's service dresses, children's play and school dresses, and household linens, in order to select the materials which should first be studied.

The Committee found, however, that before it would be practical to attempt to carry out the part of its program that called for getting on the market minimum standard goods, and goods that surpassed this standard, much preliminary work was yet to be done in standardizing

the wearing tests conducted in the textile laboratory, and still further in evaluating these wearing tests in terms of actual wear on actual human beings under normal conditions. For the latter, it felt itself particularly well equipped, because of the many students enrolled in clothing and textile courses in schools and colleges, who could make up and test out, in actual wear, fabrics previously tested in the laboratory. The former, however, required a long series of experiments in a well-equipped textile laboratory, carried on by investigators who not only had the laboratory point of view but a practical knowledge of manufacturing conditions.

For this reason the Committee presented its problem to the Bureau of Standards in Washington, which maintains a well-equipped textile laboratory, and to the National Research Council, also in Washington, and received not only encouragement but definite promise of coöperation. Last February, it gained the approval of the Council of the American Home Economics Association for turning over to the National Research Council, for organization and direction, that part of its research program which dealt with the standardization of an accelerated wearing test and related problems. When organized, this work will be directed by a research committee appointed by the National Research Council, including representatives of the American Home Economics Association, and, it is hoped, representatives of associations of manufacturers and others interested in the purpose of the investigation. It is anticipated that much of the laboratory work will be done in the Bureau of Standards which has been interested in this problem for some time and has recently acquired new testing machinery.

When the plan of coöperation was accepted, it was hoped that at this meeting we should be able to report some details as to the personnel of the research committee appointed by the Research Council, and at least the preliminary outline of the research program. The Research Council, however, is planning to make the study of wearing tests and minimum standards of wear a part of a larger and much more comprehensive plan for textile research, a plan which because of its magnitude is slow in shaping itself. Moreover, the progress of the Research Council has been made more difficult by depressed conditions recently prevailing in textile manufacturing and merchandizing circles.

The Research Council advises us, however, that it is proceeding with necessary preliminary steps, and we hope before long to advise you through the *JOURNAL OF HOME ECONOMICS* of the organizing of our research program [for work relating to accelerated wearing tests and minimum standards.

GENERAL SESSION

June 29

Mary E. Sweeny, presiding

OPPORTUNITIES FOR WOMEN IN INSTITUTIONAL
ADMINISTRATION

MARY A. LINDSLEY

Manager, Grace Dodge Hotel, Washington, D. C.

There are many women who have met success in the commercial world from sheer determination, but at the expense of many hard years in corraling their experience. When considered from an economic standpoint, this is poor economy. The woman with the greatest opportunity is the one who goes into her field with a thorough training as the foundation through which her vision has been broadened and deepened, and her ideals of service strengthened, so that she is keen to her responsibilities and possibilities, and has an understanding that makes it possible to contribute towards the further development of her profession.

Club houses, eating places of every description, apartment houses, community housing problems that are arising everywhere, schools, and many other fields are eagerly waiting for someone who can step in and visualize the operation and management in its entirety; who can see the mistakes and correct them.

It makes little difference whether one chooses the direction of food, housing, accounting, laundry, purchasing, or any other department; each is a constructive piece of work, needing the highest type of fine womanhood to make the result worthy of the opportunities. When this standard has become established, the commercial, social, and professional world will concede, without exception, that it is not the phase of work in this great field of home economics with which we associate ourselves, that counts, but *how* it is done and *what is done to glorify it*. The centuries-old stigma of domestic work is rapidly falling away because of the splendid women who have already been farsighted and courageous enough to carry out their convictions, and who have had the vision to see that this work contributes to better living for the nation, and is, therefore, the foundation of the life of the nation.

As in any large business concern, the manager or chief executive must have the knowledge of the detailed operation of every department in

order to direct, efficiently and intelligently, each department in relation to every other.

The operation of administration is divided into two classes; engineering, the preparation of the "product" (food, housing, teaching), and salesmanship, the process of transferring the "product" to the public or consumer. Success requires that both divisions be operated equally efficiently.

The department of accounting is a field where the need for home economics women, with special training in that line, has been least realized, but where the need is growing more persistent every year. Budgeting, cost accounting, and cost finding are interlinked with everything that pertains to buying and planning. The intelligent proportioning of sums for operation, and the development of economy in these portions can only be accomplished when the accountant is familiar with the operation in detail as well as a whole, has a knowledge of the uses of materials and supplies and of the productive possibilities. Therefore, I know of no one so well qualified to handle the fiscal department of a housing or feeding problem as the home economics woman who has supplemented her training with a knowledge of accountancy.

The position of house director in large or small institutions is a position that offers variety and delight to the woman who understands the fundamental psychology of "home;" who has artistic appreciation of colors and their combination, and good taste in furniture and furnishings; is gifted in the handling of help, for it is a gift; and has a knowledge of textiles. Many of our manufacturing and furnishing houses are obliged to send to the new club, hospital, or hotel, a person, trained in artistic furnishings and decorations, but wholly ignorant of the uses of those furnishings. She determines what shall be used and where it shall be placed, with the inevitable result of inconvenience in operation, and the attending useless expense of human effort in counteraction of these mistakes. What a great opportunity for the woman who can supplement her technical training with the artistic aspect of furnishings. This is one of the administrative positions, which, because of its associations with the old-fashioned, inexperienced, and, too often unintelligent, "housekeeper," has not come into its heritage, but it is "in the making;" and the molding of its future standard is in the hands of those who will it.

The possibilities, financially and professionally, in the direction of foods, have been recognized more fully than in any other branch, and so I will say little about it, except to emphasize the importance of individual departmental cost findings. Only in this way can a maximum income be

realized from the minimum cost. In a feeding proposition of any kind there are departments which are run at a loss, although the net income is substantial. While this is expected, if the amount of loss in that department is not definitely known, it cannot be adequately compensated in another department which is supposedly covering it; any leak, extravagance, or inefficiency, cannot be immediately associated with its own department.

The laundry offers an opportunity for progressive, constructive work, both in organization and research. Here is a department that can be a great expense, or an equally great economy, depending upon the preservation of the large quantities of linen, which are not only expensive but difficult to obtain.

The positions of purchasing agent and receiving clerk are of much more importance than is generally conceded to them. In addition to exceptional judgment, and a thorough understanding of the value of articles handled, these positions demand the qualification of absolute honesty, because they are most important points of control.

The Grace Dodge Hotel, the most recent project of the National Board of The Young Women's Christian Association, is named in memory of Miss Grace Dodge, the founder of the Board. It will be opened in the fall and will offer accommodations comparable to any first class hotel in service and appointments, at rates ranging from \$2 to \$4 for transient guests. It has been built for the travelling, professional, and business woman who requires something better than the usual boarding house, but cannot afford the expensive hotel. A number of rooms will be reserved for resident guests. There are special features, such as valeting rooms on every floor, where a guest may refresh her wardrobe; telephone; running hot and cold water in every room; a sitting room on every floor, besides the luxurious lounge and lobby on the entrance floor; special service when desired; a gift and necessity shop; and a restaurant where club meals will be featured. Special accommodations for mothers, travelling with babies and children, are to be reserved in quarters where noise will not disturb guests elsewhere in the building.

Every home economics woman will be interested in the experiments which are going to be made here; experiments in engineering, in salesmanship, labor control, in student training, and in commercial financing comparisons. Our plan for offering a definite course to the home economics graduate, using as a practice field every department of the hotel, is one of the most promising experiments. This will enable a student to so concentrate her practical work, instead of spending years

in gaining her practical experience, that she will be trained in a short time for general executive work. I feel that this fills a long felt need in the rounding out of the training of our home economics students.

The opportunities for our graduates are many and great, and our field is far reaching in its scope. Every home, institution, commercial organization, and school is a golden opportunity. Let us never forget the message that Professor Russell Conwell gave us so brilliantly in his lecture, "Acres of Diamonds," and so see the opportunities which are forever within our reach, wherever we may be.

HOME SERVICE DEPARTMENTS IN BANKS

LEO DAY WOODWORTH

Deputy Manager, American Bankers Association, New York

The function of the home service department in any bank should be studied and understood by those experts in the technique of home economics who enter that new field as department managers.

In not a few cases, this function is evidently regarded merely as an attempt to advertise the bank, or for making it appear that the bank is giving something for nothing. In other cases, we may find that assistance in the planning and operation of the personal budget system is intended to result in the strictly selfish object of increasing the savings deposits in the bank which offers this service. But there are cases in which we perceive at least a rudimentary understanding of the broad principles that the banker has a peculiar obligation not only to his depositors but to the public, to furnish dependable information on questions of finance, both public and private. The bank, which is the confessional where are revealed the causes of successes and failures in our business life, should use its resulting knowledge. It must frankly assume a leadership in the framing of both personal and governmental business policies. The banker, like any other worker who attains professional rank, must recognize this duty of public service. Well planned and consistent application of this idea will spread a knowledge of the facts that (1) banks are a necessary cog in our American economic machine, (2) they exist for public as well as private service, (3) they are in fact "people's banks," and (4) they will prosper only in proportion to service rendered.

It is in the application of these ideas that the members of the American Home Economics Association have a very special interest. It is my present purpose to indicate the lines on which they now have a special

opportunity for applying specialized knowledge, not only in the management of home service departments in banks, but also in formulating the plans for developing such departments, and for arousing the interest of bankers as a preliminary to their possible employment.

The home service department, whatever the form of the work and the object of the banker, is in a bookkeeping sense related directly to the new-business department. This department is interested in stimulating or developing old accounts quite as much as in obtaining new clients for the bank. The expense in the average institution will be charged against the appropriation for advertising. This will probably remain the ruling until the work is placed upon a more permanent basis of practical results than has yet been observed.

We approve of the emphasis which was placed, by several speakers this afternoon, upon the necessity for individual consideration, the use of each client for what you call "case work." We have seen many sample budgets, based on "average" cases, distributed to "unaverage" cases. Until the average case is found more frequently than now, the services of experts will be necessary. It stands to reason that knowledge, and not mere formulae, must determine the most advantageous modifications, either in the apportionment of family income or in revising modes of living so as to obtain the greatest benefit from actual income; and by no other method can a vast number of American families be added to the list of savings depositors.

But, on the other hand, we observe in some cases a tendency to enthuse too much over strictly professional accomplishments. We therefore suggest a few words of caution: Business judgment and tact must be applied along with professional skill, as the home service departments are under the eyes of practical business men. The bank's desk is not a place for elaborate case work, such as is presumed to have been pursued in the college laboratory. Attention is called to these points because of their importance to the managers of home service departments and for the success of the cause in which we have a deep and mutual interest.

The manager of a home service department, as in the case of every other bank employee, must, at all times, have in mind the present need for spreading a knowledge of the real function of banking in our economic system. She must avail herself of every opportunity to spread a knowledge of and appreciation for the real principles of our economic system which have brought larger and more widely distributed happiness, comfort, and opportunity than is elsewhere recorded in history. In

other words, the members of your profession must not lose sight of the fact that you are employed for the purpose of urging and applying American business sense in both the personal and the public problems which you will have occasion to discuss.

Personal affairs must be managed in what we call a businesslike way, for only by that means can the individual enjoy a maximum of happiness. avoid the misery of debt, assure preparedness for opportunity, and provide a competence for emergency or old age. Some of the slogans with which we are familiar and which explain the idea are "work and save," "spend less than you earn," "be a thrifty buyer," and the like.

The home service department can have an important influence in the reform of our public finance. Persons who are interested in systematizing business affairs belong to that too small portion of our population which is not interested in questions of taxation and all that we may include in the general term of public thrift. In the near future we will have an awakening as to the increase in the cost of living, which results not only from the present wasteful methods of distribution of commodities, but also from excessive governmental tax levies upon the annual income of the nation. Just as improved methods and a lower cost of distribution depend, not upon legislative bungling and bureaucratic inefficiency, but upon consumer education, so reduced taxation can result only from a public opinion which insists upon retrenchment. Those workers in home economics who enter the bank field will quickly discover that they are in the employ of men who are broad visioned of necessity, and who view these matters as of special importance after the strenuous and often bitter experiences of the past year. It has not always been popular to preach the sound doctrine that prosperity can be restored only by production and saving, rather than by living in a fool's paradise of inflation and paper money. We must earn and not print money.

The experts in home economics, who have devoted their energies so generously to the development of the bank work during the past few years, are meeting the usual fate of pioneers. Discouragements have been many. The real worth of their effort may not yet be clear. However, we may be sure that substantial progress has been made. More bankers are interested, and the plans of operation are taking more practical shape. Encouragement may be derived from the fact that the list of banks which distribute budget blanks and books is constantly increasing. Whatever the value of that distribution, the result must be to create a larger demand for expert service. With the ending of the slump in the earning

power of banks, it is probable that those bankers, who perceive this opportunity for popularizing their institutions, will be more ready to act upon the plans which will be submitted by members of the American Home Economics Association.

The American Bankers Association, through its Savings Bank Division, will be pleased to coöperate with you in the further development of this work.

GENERAL SESSION

June 30

Mary E. Sweeny, presiding

HOME DEMONSTRATION WORK

O. B. MARTIN

Assistant in Charge of Demonstration Club Work, Office of Extension Work, South

Home demonstration work is an enduring contribution to American education because it has enlarged the content, horizon, and domain of useful knowledge and practice. For ten years ever increasing numbers of devoted women have focused their thoughts and activities upon the country home. They started out upon the theory that the woman is the queen of the farmstead. The farmstead, of course, is not simply the house itself, but also comprises the immediate environment. This environment includes the garden, orchard, vineyard, poultry yard, barnyard, grove, and lawn. The scope of home economics knowledge prescribed by some teachers includes "food, clothing, and shelter," but this is not sufficient definition for the results achieved in home demonstration work, even in the short space of a decade.

The annual tabulation of results shows an enrollment of more than a million women and girls. The containers of canned, dried, preserved, cured, and brined products and the pounds of fresh ones, grown and put up by these workers, from the gardens, orchards, vineyards, poultry yards, and farms, is measured in hundreds of millions. Better kitchen and labor-saving devices, such equipment as water works, lighting and heating systems, washing machines, refrigerators, pictures, draperies, rugs, and other furnishings are summarized in hundreds of thousands. There has been a growth of the group idea because of the common purposes. There are now thousands of clubs and an evolution of community organizations. Organizations based upon such a foundation have much

of promise, for they may mean a multiplication of effective object lessons and a fuller civilization.

It has been rather difficult to get demonstration agents, many of whom are former teachers, to understand and realize just where and how their work should take effect. They are accustomed to schoolrooms and classes, lessons, and lectures. Sometimes, in public speeches and writings, they arouse interest by the presentation of valuable knowledge and then fail to convert that interest into action. They do not always grasp the fundamental instructions which are given to them in the beginning, viz., "Your value lies not in what you can do, but in what you can get other people to do." On the other hand many of them with practical minds analyze the conditions as they find them and get people to apply remedial knowledge accordingly. It does not take long for them to enlist a hundred people in a county to prove a principle and inaugurate a practice. They call for such help as specialists can give, and they put many mechanics and inventors to work in order that better equipments and devices may be provided for the women and girls in country homes who are working to demonstrate better practices in their enterprises. The evolution of canning outfits, pressure and fireless cookers, inexpensive water outfits, refrigerating plants, and many other useful articles are practically traceable to this demand. Furthermore, this development is just beginning.

Home demonstration work has made a contribution to American education because it has produced a profession with unique, distinctive, and extraordinary qualifications. Students of education and of agriculture, who have come to this country from Europe, say that the application of demonstration principles and philosophy to the extension work, in general, goes a step further than the work of the itinerant instructors in those countries. Their instructors are comparable more to our teachers of music, drawing, and manual training, who go from school to school with their lectures and illustrations. They testify, also, that the home demonstration work is distinctive because of the larger place given to women in its appointments and conduct. No bulletins or reports from any foreign government show any such groups of women with such large responsibility and vital relationships in matters pertaining to the welfare of the race and the security of advanced civilization. The home demonstration agents are not simply teachers at large. The qualifications, as manifested by these devoted servants themselves, as they have moved about among the people, are difficult of definition because they are still increasing. Suffice it to say that thus far they have developed a com-

posite picture of a model agent, and in the picture is revealed at least some of the equipment and abilities of all of the following: coach, trainer, and guide; gardener, orchardist, and farmer; cook, seamstress, and dietitian; carpenter, cabinet maker, and mechanic; missionary, sanitarian, and health officer; chorist, colporteur, and recreationist; ambassador, diplomat, and financier; florist, architect, and artist. Their coaching, training, and guidance are more vital than any academic teaching which they do. Their teaching is incidental and supplementary.

Home demonstration work will last because it reaches adolescents, adults, and the mass in a geometrical ratio. Because the home is the family's private and sacred institution it was difficult to make it the central teaching institution for this system of education. From the very nature of the case, parents resent dogmatic instruction in regard to the conduct of the home. It was impossible to go to a home and announce a purpose of teaching the mother how to cook, sew, arrange, equip, beautify, or manage. The first demonstration agents therefore asked the mothers to allow their girls to join a club to grow and utilize a very attractive vegetable. These operations involved the securing and using of much valuable knowledge in regard to the soil, plant life, animal life, cooking, sanitation, bacteriology, and other related sciences. The agent and the club gave motives, the girls formed purposes and desires. As was expected, they soon enlisted the coöperation of the mothers. They did not stop there, however. Their fathers, brothers, and friends joined in with their commendation and support. Success with one vegetable led to work with others. From the vegetable work it was only a step to the work with fruits. These girls put up standard packs which were works of art. They standardized them singly and in combinations. Whole counties became interested in certain specialized products. Naturally, the mothers of these girls, as well as other women, wanted to take a hand in such a useful enterprise. Step by step the plan worked itself out until it reached and utilized many of the resources available around the country homes. It also reached into the kitchen, the house itself, and finally, as a climax, into the beautification of the home and its environment. Such a result could not have been achieved if the girls had not taken a definite demonstration first and then carried it forward to its logical consequences.

We have had field meetings, contests, exhibits, camps, and short courses—all contributing to the expanding enterprise of the girls and women who started with their demonstrations. So much interest and activity has been aroused among adult women that it raised some doubt

as to whether the psychologist was right when he said, "Few new interests are created after a person reaches twenty-five years of age." In these cases the interests have certainly been enlarged and increased and there seems to be plenty of novelty and zest in them. The whole proposition works into a system of mass training.

When this system of education comes to its full fruition and power, it will aid greatly in stopping the rush of people from country to town. When a sufficient number of girls and women demonstrate that there is profit in the development of their material resources, and that there is culture and refinement in the skillful use of their talents along these lines, the balance between country and city will be more nearly adjusted. This desirable condition cannot be brought about simply by the development in agricultural lines alone. The home economics side of our Extension Act must be magnified. A national Home Economics Association should never forget that women invented the word economy in their homes. There is a production profit, a manufacturing profit, and a sales profit. By intelligence and skill a larger share of all three of these profits can be given to the farmers and their families. It will improve the country and its interests, and decentralize the city and remove its congestive dangers.

Home demonstration work grows stronger because of increasing support of business men, law makers, and educators. The constantly increasing power of an intelligent, public sentiment has been a great factor for success. Bankers, merchants, fair associations, and business men generally have donated generously for prizes, salaries, equipments, and traveling expenses. Women's clubs have given a supporting sentiment and financial aid. County superintendents and teachers have declared in favor of coöperation and coördination, and have become most active in bringing them to pass. Colleges and high schools have extended helpful recognition and conducted training classes, camps, and short courses to add to the knowledge and skill of the demonstrators, club members, and agents. County commissioners, county courts, chambers of commerce, boards of education, and fiscal authorities of every kind have contributed funds for support which nearly equal the total amounts appropriated by the State and Federal governments. The annual budget is nearly four million dollars, and the amounts will be larger with the increase of efficiency and the expansion of the results. More than a thousand agents were at work today traveling on trains, in autos, in buggies, on horseback, and on foot. They are directing demonstrations in gardens, in orchards, on lawns, in homes, and conducting meetings of

instruction in such public institutions as schools, colleges, courthouses, and churches. By such arrangement, home demonstration work takes its permanent place in the institution of extension which has become a fixed policy, by legal action, of the Federal Government and all the states.

RECRUITING EXTENSION WORKERS

JOHN D. WILLARD

Director Extension Service, Massachusetts Agricultural College

Early in the year vacancies occurred in our extension staff, both at the college and in the counties. These vacancies were in crucial positions. In the course of the search for candidates a letter was written to the directors of extension in nine northern and eastern states. All responses indicated a dearth of workers and difficulty in filling similar positions. Our colleges and normal schools are each year graduating large classes of workers trained in the various branches of home economics, and perchance this group of directors are either exceedingly blind or supercritical. Surely there must be among the multitude of graduates a sufficient supply if only they can be located.

The growth of home demonstration work suffices to give a part of the reply. Further light on the problem is given in the reply from one of our institutions which specializes in home economics training. "We find it difficult to interest our graduates in extension work. They consider the requirements of the position too burdensome; long and irregular hours, the sacrifice of a regular home life and of regular enjoyment of community relations, the physical strain, the added cost to the worker of a nomadic life, and the certainty that work is never completed, act as deterrents. Our graduates seem to prefer positions with fairly definite tasks and routine, with more personal freedom and less physical and nervous strain."

I have no argument to refute these statements, for they are true. One of our great difficulties originates in the fact that extension work is rigorous in its demands on strength, resourcefulness, and technical ability. Let us therefore consider a little more carefully the nature of extension work, as throwing light on the necessary personal equipment. Here I speak from the viewpoint of Massachusetts and shall leave open every avenue for frank dissent by those from other states. We feel that the main task of the home demonstration agent is to focus the attention

of homemakers on the problems that affect their homes, to organize their effort toward the solution of these problems, and to bring them in contact with the agencies which may serve them. Results commensurate with the task can be obtained only as the home demonstration agent builds an organization of women who by their own efforts meet the major part of the need, utilizing such agencies as are at hand, and creating new and adequate local agencies where necessary. "Diffusing among the people of the United States useful and practical information on subjects relating to agriculture and home economics." This is the verbiage of the Smith-Lever Law, and I take it that the requirements of the law are successfully met only if the effort is so organized that it reaches the majority of the homes. The concept of extension work in agriculture and home economics is to place the responsibility and burden on the farmer and the homemaker just so far as they are capable of bearing it, and to develop initiative, ingenuity, and resourcefulness, rather than to furnish pre-digested information which will reduce the necessity for individual brain-activity.

For the extension work we have recruited personnel from any sources which gave promise. It is high time that we ceased competitive bidding between various extension staffs, transplanting workers from one state or county to another with no promotion in responsibility and opportunity; between extension work and resident teaching; between extension work and research; between extension work and the various forces in the fields of health and social service. We must give our attention to the building of a personnel out of original material, in order that we may have what we need, and get it without crippling the work of other agencies.

Recruiting must begin back in colleges and normal schools. The opportunities for service in the extension field should be presented to students, but this should be done with most careful emphasis on the rigorous requirements for successful work. I can well appreciate the problems of deans and principals who are confronted with graduates demanding positions in fields for which they are not qualified, having been led to consider such fields by glowing presentation of the opportunity.

To minimize this danger, a selection of students might well be made by faculties, and, for promising groups interested in the extension field, seminar work and vacation practice can be provided. With regard to the curriculum, I cannot refrain from urging the necessity of systematic training in methods of teaching, and particularly in methods of extension teaching, for those who plan to enter the extension field.

But when our graduate emerges from the severities of study which are implied in the committee recommendations, even after a practice period, she is far from ready for extension responsibility. She will, in the majority of cases, lack maturity of judgment and wisely directed inspirational ability. I am firmly convinced that we must devise types of work that may be comparable to that of the interne in a hospital, who interposes two or three years of supervised work between his studies and the assumption of sole responsibility. This is a task for extension directors and state leaders rather than for colleges and normal schools. May I submit for your consideration several suggestions, with the earnest plea that you criticize them for our benefit:

1. Assistant home demonstration agents are a possibility. In some of our larger counties there is a demand for units of work that can safely be sub-let to agents of limited experience.

2. Junior extension work, for assistant county club agents or local or city club agents, will of necessity give introduction to the larger problems of the home demonstration agent.

3. Resident instructors and laboratory assistants in agriculture are frequently called on for extension work, and by this means are introduced to the extension method. Is not the same possibility open in the field of home economics?

4. Urban extension work, under the supervision of the county home demonstration agent, is suggested by war-time experience. Such work would probably be in definite cooperation with the school system, and might be initiated by part-time release of one of the regular teaching staff, in order that she might do extension work among the large numbers of women who can never be reached by the systematic vocational schools. The resources of the extension service are at the disposal of the city home demonstration agent now working in Massachusetts, and are effective through the channel of the county home demonstration agent.

5. In a limited way the vocational schools may be able to coöperate, though their schedules will preclude the release of any great amount of time.

In these various fields, graduates from home economics courses may be given tasks commensurate with their ability, and may be promoted as they gain the necessary strength and maturity.

It is my belief that our technical specialists on college extension staffs can best be recruited from the county staffs, the specialist returning to college after field experience in order to get more intensive training in her chosen field. We shall, however, continue to draw many of our

best specialists directly from teaching and research. State leaders may best be developed from the ranks of county agent work, and I believe should come by promotion for merit. The crucial unit seems to be the county home demonstration agent. If we can insure an adequate supply of well trained home demonstration agents, the problems of recruiting specialists and state leaders are in no small part met. The body of home economics subject-matter has material of infinite value to the homemakers of today. Our task is to make it available to them. Some can utilize but the simplest crumbs; others may make developments that point the way of extension leading to us. The open mind, both to subject matter and method of teaching, will be our greatest safety. By cumulative experience and concerted effort we can make advances beyond our most daring dreams.

EXTENSION SECTION

June 28

Madge Reese, presiding

REASONS FOR RAPID DEVELOPMENT OF HOME DEMONSTRATION WORK

To my mind, one reason for the rapid development of the home demonstration work has been the great need, in practically every country community, of some new life, some live help, some inspiration; another reason is that the plan suggested rested on fundamental things and was mobile.

What has been the development of the home demonstration work?

Begun in 1910 with 47 club members growing tomatoes and canning them, it is today an organization of 135,505 girls, who are gardening, canning, sewing, cooking, dairying, raising poultry, improving home grounds, refurnishing rooms, learning to take care of their bodies, developing in their contact with other girls, improving their homes and communities.

When the first home demonstration agents were told that it was their mission to develop the resources, increase the harvests, improve the landscapes, brighten the homes, and flood the people with knowledge about home conveniences, it must have seemed a big order. But they developed the work in simple, logical steps, according to the plan. With the gardening and canning, the sewing, cooking, sanitation, poultry, and other varied phases of life in a farm home formed a natural sequence. The mothers were interested in the work of the club girls, helping the girls in gardening and canning, so their organization into home demonstration clubs naturally followed, and they became demonstrators of improved methods.

Another reason for the rapid development of the home demonstration work has been the type of woman who has, in so many cases, been secured to carry on the county work.

A recent hand-book for home demonstration agents, gotten out by South Carolina, has this quotation: "A successful home demonstration agent has facts at her finger tips, sunshine in her face, the courage of conviction in her heart, sand in her shoes and steel in her backbone, which she uses as a lever to pry pessimistic plodders and organized opposition out of the path of progress." Many of the right type have been secured; otherwise, the plan, excellent as it is, would have failed.

The actual results shown by the girls and women in their demonstrations have been so convincing that many who doubted that such methods could teach, have perforce been converted. From the beginning, the vegetables and fruits, canned by the instructions of the agents, kept, and were pronounced good. This one thing, done in one neighborhood reached to another and another and there were requests for the demonstrators to teach them, also.

In summing up, it seems that there are four reasons for the rapid development of the home demonstration work: It was well conceived. It met a very definite need. It has had leaders of vision. Results have been shown.

MARGARET AMBROSE,
Asst. Dir. Home Demonstration Work,
Knoxville, Tenn.

Never have we known a time in the history of extension work when the demand for organized home economics project work for the farm women has been so great. Previously there may have been a greater demand for single demonstrations and lectures, but the women today ask for help in planning a community program. The membership campaigns carried on in nearly every state and the incentive of the National Farm Bureau organization have given an impetus to this demand which it was impossible to anticipate. The extension workers who can offer a solution for meeting this insistent demand, from county after county, for help to organize work to be carried on without an agent, will truly meet a real need.

It is a reward for the early extension worker to realize how much of a foundation was laid in the field by the single meeting or demonstration. We owe a big debt to those untiring workers who aroused an ever-growing interest among the farm women for study of their own profession.

The organization in 1920 of the American Farm Bureau Federation is a factor in home demonstration work which cannot be ignored. The very rapid development of this farm organization, with its million and a half members, is astonishing.

Rural people are awakened to a need for definitely organizing for the purpose of analyzing and solving rural problems. As extension workers we have

now a chance to assist in a most remarkable piece of work. To do this means a thorough study of the situation. We should be at work to discover the most effective means to organize permanently the work for the farm woman as an integral part of the farm bureau.

The question of separate executive committees must also be studied. Can we best promote a home demonstration program with a joint executive committee or shall this work function through its own executive committee composed only of women? This question is being solved in several different ways in many states. Can there not be set up some standard of effective work so that we may be able to judge which type of organization will give the best results?

The lack of sufficient funds and agents is a most serious handicap at this particular time. Home demonstration agents, both county and state, need more instruction in educational methods. We must demand that all home demonstration workers have as sound a training in methods of teaching as are demanded in any other phase of the teaching profession.

In looking to the future, the extension organizations have the greatest opportunity in the history of agriculture to show how vital a part rural life has in the future development of this nation. As representatives of home demonstration work, let us seek for the best ways for the men and women of the rural community to serve in this great organized effort to make the rural home second to none.

MARIE SAYLES,
Ohio State University.

HOW CLUB WORK PREPARES GIRLS FOR EARNING A LIVELIHOOD AS WELL AS FOR WOMANHOOD

Boys' and girls' club work as carried on by the United States Department of Agriculture, the State Agricultural Colleges, and the County Extension Organizations, generally known as the farm bureaus, is an organized effort to reach the boys and girls in the rural community and to assist them in discovering real opportunities which rural life affords, thus giving them a deeper appreciation of the rural home. It seeks to do this by helping them to carry out a "real job" which will benefit not only the individual but others in the community.

Every person, young or old, wants to feel that he is doing a real piece of work, that his efforts are going to accomplish something worth while.

This job may be a small one but if it helps to solve a home problem it is none the less real. When a girl has made a good fireless cooker at a small cost and has shown her mother that she can put a piece of meat in it early in the day, dismiss all care of it, and return to find it cooked and ready to use, she has helped to make work lighter for that home.

Though the subject here deals with club work as preparing girls for making a livelihood, as well as for womanhood, we must keep in mind that the majority of the girls are to become wives and mothers, hence the primary aim of club work is to prepare them better to fulfill this mission. The girl of club age has a splendid opportunity to demonstrate practices and methods in homemaking which will be a benefit to those around her, and which she can capitalize later on to good advantage as a wife and mother.

There is the desire, however, to see immediate returns. She often needs to make some money to purchase things which she wishes. This has led her to enter into commercial enterprises on a small scale. Through conducting certain phases of the farm and home business, as poultry, gardening, canning, she can gain a small income. This is a natural outgrowth of becoming proficient in some phase of the work which she has undertaken. Canning, preserving, or the making of jellies has probably been used in this way to a greater extent than other club activities. Gardening enters hand-in-hand with canning, and where these two enterprises are carried on together, it makes it possible to get a better financial return, as well as to insure a better product. One canning club of eight members, consisting of four boys and four girls, most of whom were eleven years, or younger, cleared \$160.00. Another club composed of eleven members, after one year of experience, decided to conduct their season's work on a real business basis. They formed a little company and sold \$5.00 shares to their own members to the amount of \$75.00 in capital, with which to purchase tin cans, canning equipment, and products. They voted to pay themselves 25 cents an hour and their leader 30 cents an hour; to divide any profits that there might be among their members, half according to the number of shares purchased and half according to the hours of labor they put in, thus settling the question of capital and labor on an equal basis. At the end of the season they had canned 1354 quarts. They sold these, realizing a sufficient amount of profit to enable them to pay back a little over \$10 to each share holder and to pay themselves 38 cents an hour, instead of 25 cents. Many girls with such a beginning as this have carried on, by themselves, canning and jelly making, in order to help put themselves through college.

Girls have often held food sales, though it is seldom that a great amount of real profit is realized from these sales. This very fact has taught a valuable lesson to others in the community, for food sales are a very common way of raising funds for local organizations, and all too many times women labor hard making cakes and cookies, only to have them sold for very little if any more than the actual cost.

Poultry has always been more or less a means of furnishing "pin money" to the women of the household, and very naturally it has been a means by which both girls and boys have realized a little income. One club of six members, in Connecticut, recently analyzed their records after six months of poultry

keeping. They found a great variation in returns from their labor. It was at first supposed that this meant that the member receiving the highest return had been marketing the eggs at the highest price; but in going into the records, it was found that the reason had been high egg production, thus demonstrating better practices in poultry management.

Girls have discovered that there are markets for nicely packed lunches for tourists; that garden products attractively arranged by the road-side will find a ready sale on high-ways where there is much travel.

On the whole, the clothing clubs do not find much opportunity for making money, but some have specialized on the making of one garment for sale.

There are many possibilities in the house furnishing clubs. There is always sale for bright and attractive things for the home, and every household has pieces of furniture which would be improved, if renovated.

We believe that the demonstrations conducted by the boys and girls are unique in furnishing motivated tasks through which the young people themselves become better farmers and homemakers of the future.

ELSIE TRABUE,
State Leader of Girls' Clubs, Conn.

Financial conditions today make income-earning features absolutely necessary for home demonstration club work.

It is the butter, the chicken, and the canning money, earned by the woman or girl on the farm, that has materially helped the family pocket book in the South when tobacco and cotton have been selling below what it cost to produce them.

Home demonstration workers have felt from the first that the recognition of the economic factor swelled the girls' club membership. They want to learn canning, preserving, standardizing the pack, and getting it on the market. The success of the venture is manifest in the number of girls and women who have established market connections with the housewife, the retail merchant, and even the jobber.

Institutions, saw mills, mill villages, have proved good markets. One club member furnishes a large college with its blackberry and strawberry preserves and is negotiating with several other institutions. We find the best policy is to sell in your own community first, your own county next, and to ship only when no local market can be had.

The profits are greater from poultry work than from any other club activity. Girls are taught to use pure bred fowls and to stick to one breed for certain purposes. They are taught how to dress fowls for market, how to pack and ship them, and how to grade, pack, and ship eggs. Many members have a fine market for birds sold as breeders, and for eggs for settings.

In Washington, the rural women are cooperating with the town club women. They bring products on certain days to sell in the public square. Preserves,

vegetables, flowers, chickens, butter, meat, and cottage cheese in attractive packages are all in demand. In Sampson County, cottage cheese in quantity is shipped weekly by club members to a cafeteria in Wilmington.

Many girls and women are turning what they have learned about bread and cake making, in club work, to financial advantage. One member averages \$50 a week, gross receipts, on the sale of angel food cake, baked in the fireless cooker; icing; mayonnaise; and fancy candies. About fifty per cent of this is cost.

The popularity of the millinery schools conducted for club members has been enormous. All of the fifty-two counties organized in North Carolina have carried on little institutes for instruction both in millinery and home dress-making. Women and girls have not only saved a good sum by making some of their own hats but some have been able to make attractive gingham and organdie hats for sale.

JANE S. MCKIMMON,
State Home Demonstration Agent, North Carolina.

ADVANCED PLANS FOR THE 1921 HOME DEMONSTRATION PROGRAM

IDA S. HARRINGTON
State Home Demonstration Leader, Rhode Island

I. Present status of work.

A. Growth proved by:

- Increased demand for workers (see committee report).
- Demand for better training for agents.
- Increase in salaries.
- Granting longer vacations for attendance at summer school.
- Improvement in equipment and office help.
- Better legislation.
- Increase in local appropriations.
- Recognition from outside agencies.
- Value set on accurate records as means to continued growth and support.
- Fact that present report forms have been outgrown.

B. Recommendations by report committee.

1. Local leadership. Growing sense of ownership in work and of responsibility for program demand that new report forms provide space for recording activities of local leaders.
2. Standards of achievement. Growing tendency to measure success on basis of projects completed rather than on numbers reached. New report forms to record progress of work rather than itinerary of agent.

3. Estimate of values. Appreciation of human values as more important than money values. Records to include social and civic advance.
4. Terminology. Recognized need of exact definition and uniform interpretation of terms such as "home demonstration, etc." Special committee's conclusions to be adopted as authoritative.

II. Program for 1921:

- A. Broader conception of work as basis of better program:
 - Growth from "patterns and dressmaking" to principles of clothing efficiency and recognition of quality.
 - Growth from "cooking" to food selection and nutrition.
 - Growth from "canning" to production and preservation.
- B. Recognition by other agencies as basis of increased opportunity:
 - Endorsement of work by League of Women Voters, National Federation of Women's Clubs, National Congress of Mothers, American Federation of Farm Bureaus, Red Cross.
- C. Efficiency analysis of present methods as basis of future success:
 1. Making and carrying out program:
 - Need of restricted program for efficient results.
 - Definite, minimum goals, as a challenge to surpass expectation.
 - Regular follow-up meetings to measure progress.
 - County-wide and project meetings of leaders, agents, and specialists.
 - Joint meetings with other social agencies to compare plans.
 - Report forms for local leaders.
 - Office filing system.
 2. Coordination of effort:
 - Interchange with other departments of Extension Service and Farm Bureau.
 - Organization of use of specialist's time to develop all lines of extension work.
 3. Personal efficiency of home demonstration agent.
 - a. Calendar of agent's time:
 - Work to be revised on basis of relative importance of agent's activities. Agent's business to teach fundamental principles to project leaders. Technical and specialized instruction left to technical experts. Filing system to be used as time saver.

- b. Records and reports to be made a means of:
Demonstrating value of work. Facilitating work of successor. Furnishing pictorial and verbal publicity.
Report slogan: "One good picture and one good story every month."
- c. Means to better work with less effort (in addition to time calendar and study of relative values):
Agent to take advantage of every opportunity for educational comparison with other workers.
Agent to set as goal a balanced life of work, recreation, rest.

RECOMMENDATIONS OF THE COMMITTEE ON EXTENSION NEEDS AND MAINTENANCE

REPORT SUBMITTED BY LAURA COMSTOCK, CHAIRMAN

I. The committee recommends that committees on courses of study in the institutions of the country admitting women students, particularly the land grant colleges and other institutions where home economics departments are already well established, give attention to the great need of training for home economics extension work.

II. The Committee believes that the primary requisite for extension teaching is sound general training, broad in scope, which will give the graduate a balanced outlook upon life with an appreciation of its art, science, history, and literature, together with such technical training as may best fit her for this special field.

III. We believe that special training in extension methods is essential for efficient and intelligent execution of responsibilities accepted as a home economics extension agent, and therefore urge that courses in extension methods be offered by institutions throughout the country.

IV. We recommend that courses in extension be taught by persons with actual field experience, and that such instructors carry through to completion courses begun by them.

V. We believe all land grant institutions should train for extension service and, looking forward to greater development of courses of study, we recommend as a present great need, a three months course for prospective workers; six weeks to be spent in studying extension organization and methods of adapting subject matter to extension needs; six weeks to be spent in field work preferably as an assistant county home demonstration agent, and under the supervision of a home demonstration agent and instructor of extension methods.

VI. We recommend that prerequisites for such course be four years of college training, including home economics, and recommendation from the extension director, or his duly appointed representative, as to fitness for extension work.

VII. That careful analysis be made of courses, already offered in each institution, by a committee of resident and extension home economics staffs, to the end that students qualifying in personality, ability, maturity, and other points, may be professionally guided into taking such regular courses and electives as may prepare them for extension home economics service.

VIII. It is recommended that field training be offered to undergraduates, such course to be taken preferably between junior and senior years. It is further recommended that such course be considered a laboratory course, no recompense to be given unless it is recognized that such service is of definite benefit to the people of the county concerned. In such case it is recommended that the student be reimbursed for actual expenses, but no salary paid.

IX. The committee recommends that serious consideration be given, by administrative officers in charge of courses of study, to the feasibility of offering graduate courses for extension workers which will lead to the M. A. degree, such courses to include sociology (general and rural), economics, etc.

X. After careful consideration of courses now offered, the committee believes that, because home economics extension is yet in the process of its early development, and therefore subject to changes, the present need may, in general, best be met by giving general training the first two years. At the end of the sophomore year professional conferences should be held and students properly qualifying should be guided into the selection of such electives in advanced courses as will best prepare them for extension work. For students of this group who decide to prepare for extension work the committee recommends that in junior and senior years courses in extension methods and in field observation and practice be given to parallel the courses in teaching methods and in observation and practice teaching which are given to students preparing for resident teaching.

XI. We strongly urge that heads of home economics departments and all extension home economics workers use every opportunity to bring before undergraduates, rural teachers institutes, vocational institutes, high school girls and all other groups of women or individuals who might be interested, the professional opportunities and advantages offered in extension work, together with the rigorous standards required in training and experience. We further recommend that land grant institutions keep in touch with graduates from the home economics departments of such institutions as a desirable source of recruits for this service.

XII. We recommend that in all states, standing committees to consist of members of resident and extension staffs be formed to consider annually personnel needs in home economics extension, and to make plans for meeting same.

XIII. We recommend that the person in charge of home demonstration work keep in touch with such undergraduates as the head of the resident department may suggest as desirable for home demonstration service, informing such persons of current home demonstration activities and where feasible taking such persons on field observation trips.

XIV. We recommend, as a policy to be established, that each year the field of extension and recent developments in the work be presented to all home economics students by the extension director, the one in charge of home demonstration work, or any other duly appointed person.

XV. We recommend that due consideration be given the personal and educational qualification for extension work, believing such work requires breadth of training, experience which has developed administrative ability and personality.

XVI. We urge that careful thought be given to the possibility of increased vacation and opportunity for study for agents in service, believing that the diversified demands upon the time and strength of the agents demands recuperation which cannot properly be secured in a short period. We recommend that state and local appropriating bodies be urged to supply such funds as may establish a minimum vacation period of 30 days per annum.

XVII. We recommend that recognition be given to the unusual calibre of service rendered by home demonstration agents and that remuneration be made on a basis of service rendered and responsibility involved, and not on a basis of comparison with other officials, educational or otherwise, whose duties do not require such training or leadership.

XVIII. We urge state leaders needing new agents to seek, for such position, properly qualified persons who are in activities outside the extension field, and who are available or desirous of change. When supervisory positions are needed, we urge, as far as possible, promotion within the state.

XIX. In order to facilitate the efforts of heads of departments and those in charge of home demonstration work in making available efficient courses of study for students desiring training for home economics extension work, the committee recommends that a committee be appointed to make further study of courses of study now offered and suggested, and prepare a suggestive outline to include:

1. Courses which may be recommended for inclusion in the first two years' work, as contributing to broad general training with a minimum of technical courses; such recommendations to be broad enough in scope as to be adaptable to the prescribed requirements for degree in any institution.

2. Courses which are fundamentally desirable in the advanced two years for those preparing for home economics extension.

3. Courses which may be recommended as electives, which should be of sufficient latitude to make a given selection prepare for such specific condition as geographical, racial, or other specific factors might determine.

We recommend that this extension section present to the American Home Economics Association a resolution requesting the American Home Economics Association to bring to the attention of all universities and colleges, land grant and otherwise, the status and needs of home economics extension, as presented in this committee's report.

The committee looks forward to rapid development of this work, to increased recognition of its need and value, and its active support by educators and the public. To this end the committee requests all home economics and other educators to lend their best effort to establish and maintain for it an increasingly high standard of excellence and efficiency.

ROUND TABLE, COMMITTEE ON TEACHING

June 28

Henrietta Calvin, presiding

COÖRDINATING HOME ECONOMICS INSTRUCTION WITH HOME LIFE EXPERIENCE

We all realize that the value of our work lies almost wholly in the degree in which we are able to reach the home and to have practiced there the principles, methods, and use of trained mental powers that we teach and strive to develop in our class room work.

We have visions of what we may accomplish in the future, basing our larger projects upon the simple ones that we have thus far found to be successful. When our work extends into the home and we see improved conditions there; when the young children improve in health and strength; when we see the girls growing into more capable buyers of home necessities and careful users of the supplies purchased; when color and style in dress become more harmonious and practical; when the homes are planned and furnished wisely and well—then and then only will we feel that our work is functioning as it should.

ETTA FLAGG,
Supervisor of Home Economics
Los Angeles Public Schools

The American home is still an entity and, fortunately, except in the large centers, a great many of the processes necessary to the welfare of the family are still carried on in the home. Those of us engaged in public school work know how great an opportunity we have to leave an impress on the average home.

The time is not yet ripe for establishing standards without teaching the fundamentals that help to produce these standards. The reaction of the mother to the present teaching of home economics is worthy of our consideration. In practically every case her criticism will be based upon the adaptability of the work at school to the home—its carrying-over power. If we deserve a place in the school curriculum we must see to it that our plans for work do not begin and end in the class room. Unless we are far-seeing enough to visualize the homes of the girls in our classes, we are likely to err on the side of adaptability. The teacher should realize that it is her province to supplement the work of the home. She has the advantage of a pedagogical training, and can get over to the daughter the fundamentals of homemaking in a way that the mother is not able to do.

The home economics teacher should impart to her classes enthusiasm for service so that the reaction is felt in the home in the desire of the daughters to be mother-helpers.

EDNA GROVES,
Portland, Oregon.

Coördinating the home with home economics instruction is essential to improve the dress of the high school girl. The problems of extravagant standards in dress, extreme styles, and immodest tendencies are found in our high schools. Party dresses are far too formal; graduating dresses are costly and pretentious; school clothes are assuming more and more elaborate proportions. Reasons back of all this are the physical changes taking place in the girl and the development of sex consciousness. During this period also, she resents restraint and has a growing desire to assert her own individuality.

Extravagant standards in dress produce envy, jealousy, and rivalry, an undemocratic, unwholesome atmosphere.

The control of this tendency of young girls toward that which breathes of artificiality, extremeness, and immodesty must come through greater home control and tactful guidance until correct standards are formed.

Every effort should be made in our home economics work to develop in young girls an appreciation of modest, conservative, appropriate, but becoming and attractive, dress. Parent teachers' organizations, and women's clubs can do much to create a public sentiment.

HELEN LEE DAVIS,
Oregon Agricultural College.

TEACHING FOODS IN RURAL SCHOOLS

CARA HARRIS

Supervisor of Home Economics, Shelby County, Tennessee

The teaching of foods in schools must be based upon the needs of the children and the people in that immediate community. As rural communities differ so very much, due to varying degrees of remoteness and advantages provided by local surroundings, they require much more adaptability on the part of the teacher and the course of study than do suburban communities. This means that every home economics teacher must study her own field very carefully. Some serious difficulties must be overcome before there can be a proper study of rural communities. There is a constant change of teachers in all lines of public school work; new teachers are necessarily slow in getting in touch with the homes of the people. The home economics teacher very often meets the added difficulty of being regarded as a very critical person. After she is once accepted by the community as a helpful person, she has unlimited opportunities to develop an interest in improved food habits and other phases of home life. She frequently has to overcome a kind of isolation in the teaching profession. She has to teach her associates how to appreciate her aims and how to help her toward working them out.

The disadvantages of isolation, inexperienced teachers, and constant change in personnel of the teaching force can be offset only by a strong county organization. If a group of teachers doing the same type of work can get together under competent leadership, for frequent conferences, they can secure the help and sympathy they need, at the time they need it most. The young teachers and the new teachers get help from those who have worked long enough to feel sure that they are meeting the needs of the people.

In order to have a strong county organization, it is essential to have supervision. There must be some one who has time to understand the needs of all, and to gather the best from each for the benefit of the whole group. This helpful leadership must continue from year to year if that which is built up is to be continued. Various plans are being used to get home economics supervision. In many counties the county home demonstration agent takes charge of the home economics work in the schools as well as the club work for the girls and the women. In some counties other phases of school supervision are combined with home economics supervision.

The conditions affecting the teaching of foods in rural schools vary greatly. Much foundation work must be done in a situation where there has been no previous home economics training in the school nor home demonstration work for girls and women in the community. The people are not conscious of the needs of the children in regard to foods. One of the best ways to get people to appreciate the value of any phase of homemaking is to invite them in to

demonstration classes. Have cooking, sewing, and laundry classes in action letting the people see just what the work really means. Ingenious teachers can arrange little plays and exhibits which will bring out excellent ideas and create a greater valuation of the work. Teachers can take advantage of community and county fairs to present demonstrations and finished products. There are many opportunities to talk to the mothers at their various club meetings.

In schools where the teaching of foods is being introduced, the school lunch can be used as a means of teaching, not only the members of the classes, but also the student body and the community, many things about foods that will be valuable. When this plan is used, care must be taken to avoid repetition that will affect the educational value of the course.

Investigations have shown that there is more malnutrition among rural children than was expected. It requires thinking very far ahead to provide an adequate supply of milk, and fresh, dried, and canned fruits and vegetables for the needs of the winter season. Teachers and county agents are organizing the under-weight children into nutrition classes.

Regular home economics classes meet the needs of older girls, and nutrition classes take care of individual cases, but very little provision has been made for children at an early age before detrimental food habits have become fixed. Those, who have given much thought to early grade work, feel that something needs to be done to train properly the young children about the use of foods. Some schools are working out definite plans for the first six grades touching many things in homemaking necessary for young children to know. Foods naturally take an important place in this course. Much more satisfactory results are obtained by this definite plan than by each teacher having to depend upon herself with no knowledge of what foundation has been laid for her work or what follow up work will be done.

Home demonstration agents and home economics teachers are trying various plans, in addition to regular domestic science classes, for teaching the mothers and children how to choose and prepare their foods more wisely. The improvement will be only temporary unless some plan is followed to keep up the work from year to year until the people are able to see some definite results in their own families.

PROBLEMS IN CONTINUATION CLASSES

ELLEN MILLER

The Merrill-Palmer School, Detroit

The Continuation School girl comes with a very different need, a very different sort of experience, and a very different attitude from a pupil in any other type of school. She generally does not wish to come to school at all,

and regards the time she must spend there as so much time wasted. It is quite difficult to keep her interested, and unless she feels that the work she is doing is of vital importance to her, her response is very unwilling. Her first requirement then is for help with the problems she is meeting now in her work and in her life at home. The majority of these girls marry, and a large percentage of them marry at an early age, so it is necessary that they should have some training for homemaking.

In Michigan the law provides for attendance of all girls from 15 to 18 years for 8 hours per week in a continuation school. Obviously, in the eight hours spent in school each week, homemaking training can not concern itself greatly with technique. A general course in homemaking has been planned by the Merrill-Palmer School for use in the Continuation School in Detroit. The aim of this course has been to develop standards and ideals rather than skill in manipulation.

Two of the outstanding problems in continuation work are the large numbers of girls who must often be handled in crowded quarters by an entirely insufficient number of teachers, and a constantly changing enrollment. The solution to the first of these problems has not yet been worked out here, although a plan has been suggested whereby the class may be divided into groups and each group enrolled in a short unit course. At the end of each course the group may simply pass on to the next unit. The course in homemaking lends itself easily to division into a number of such short courses. The fact that the class enrollment is constantly changing makes it inadvisable to undertake any piece of work that must be held over from lesson to lesson. The class work for each day has been planned to be as nearly as possible a unit in itself.

This plan lends itself particularly well to that unit of the work which deals with clothing. There is in the curriculum a course in sewing which is elective. While it is desirable that every woman should know how to construct a simple garment, it is frequently unwise for her to spend her time and strength dress-making when she could buy a garment ready made. Every woman, whatever her occupation and whether she sews or not, does buy clothing ready made. Her greatest need is for information that will help her to choose clothing economically, suitably, and becomingly, and to receive a maximum of satisfaction out of it, once she has made a purchase.

In order to teach the girls how to buy, quantities of ready-made garments were brought into the class room. Hosiery was first considered, and because these garments are staple in character quite a large number of garments were purchased. These are to be kept in a permanent exhibit with additions from time to time as needed. Through class discussion the good and bad qualities of each garment were pointed out. Each garment was examined by the pupils as to type and quality of material, and method of construction. Trade terminology was explained and its significance made clear. Care and repair of stockings, and the necessity of buying the correct size were brought out in the discussion.

In a similar manner, exhibits of knitted and muslin underwear were brought into the class room and discussed from the standpoint of cost, suitability, durability, and attractiveness. The subject of underwear gave ample opportunity to discuss such questions as personal cleanliness and modesty in dress. The underwear was also purchased for a permanent exhibit.

An exhibit of suits and dresses was borrowed from the stores for use in the class room. Another exhibit of corsets and of shoes was arranged. These garments were discussed from the standpoint of cost, durability, attractiveness, and relation to physical well being. A foot skeleton was borrowed from a shoe merchant and the effect of improper shoes illustrated. Each girl was taught how to assume a correct posture, both when sitting and standing.

In connection with the question of physical well being and personal attractiveness a local woman was brought in to demonstrate the care of the hair. With improvised equipment such as would be possible in any home, she shampooed one of the girls who volunteered from the class and explained each process as she went along. She demonstrated the proper method of curling the hair to avoid the possibility of burning it, and showed how to take care of it each day. Instructions were given for the treatment of pediculosis.

Another phase of the work dealt with the home and family life. This was based on the family income. While discussion centered around the budget, the aim of this part of the course was to develop high ideals of family life and to teach the girl her responsibilities and privileges as a member of a family. In this connection it was discovered that a large percentage of the girls who are working give all their money to their mothers. Generally the mothers do all the buying and give the girl money for lunches, car fare, etc. This often deprives the girl of a chance to put into practice what she has learned, or to learn, by herself, through experience in buying.

The practical work in this part of the course was the furnishing of a bedroom and living room in an alcove of the basement. The furniture purchased was either very simple new furniture or second hand. The old furniture was refinished and reupholstered in class and the rooms arranged by the girls. The work with the bedroom offered a splendid opportunity to demonstrate the care of the bed, and to teach the girl her responsibility in the care of her own room.

The question of nutrition has been dealt with both through the discussions of food in the budget, and food in relation to personal appearance. The principles emphasized were the necessity for protective foods, and selection in its relation to cost. This work has not yet been completed.

TEXTILE SECTION**June 29****Agnes Craig, presiding****HOW CAN SCHOOLS OF HOME ECONOMICS AID IN THE
TRAINING OF THE TEXTILE CHEMIST?****ELIZABETH WEIRICK***Textile Testing Laboratory, Sears, Roebuck Company*

Until recently the side of home economics that has received most attention and research has been the subject of food. This was due to the fact that household science subjects have been on a firm scientific basis. The chemist, applying his analytical methods to foods, gained the public interest which resulted in the passage of the Pure Food and Drug Act and in an increased interest in the subjects of nutrition and dietetics. Now, however, the textile side of home economics is acquiring a scientific aspect. The textile chemist is a fact, and the subject is rapidly becoming popular. People are demanding legislation which will penalize the misrepresentation and misbranding of merchandise; they are no longer willing to buy materials supposed to be durable and find that they are not. They want to know just what they are buying and the only sure way of knowing is by laboratory testing.

The testing of materials is desirable for a number of reasons: clever imitations of high grade materials are on the market; the increased cost of labor has forced the use of cheaper grades of fibers and cheaper methods of finishing; an inferior quality of goods has often resulted from the use of a greater number and variety of machines; and many new kinds of fibers have been introduced. This need for testing textiles is the result of the present intricate and roundabout methods of manufacture and marketing. In the old days when all the processes of making a garment were carried on in the home there was no such need, but now each process is a separate industry, so that there are many opportunities for substitution and misrepresentation.

The nature of a piece of material may be lost sight of in the mere process of marketing it; for, even though the manufacturer is honest, it may pass through the hands of so many middlemen, jobbers, and retailers that by the time it reaches the consumer, claims are made for it which the manufacturer did not originally make. Particularly is this true when it is bought in the form of ready-made clothing where a variety of materials are combined in one garment.

Ignorance is largely to blame for this condition. But the time is coming when agents must know exactly the goods they are selling and must truthfully represent them. The consumer is coming to demand a reasonable amount of satisfaction and service from goods purchased; therefore, a few retailers have established textile testing laboratories in order that they may be absolutely sure

of the character of the goods they are selling—may give to their customers the maximum amount of service at the minimum cost, and at the same time protect themselves from inadvertently misrepresenting their goods. This throws more responsibility on the manufacturers.

We are entering a period of textile education. Through universities, colleges, public schools, the Government States' Relations Service, women's clubs, and magazines, the public is being taught to judge fabrics and to demand quality.

The work of a textile chemist includes the following: identification of all kinds of fibers, often so mixed and treated that only very careful microscopic examination can reveal their identity; identification of all kinds of cloths, which involves familiarity with weaves, and manufacturing and finishing processes; identification and testing of dyes; determination of the causes and the removal of stains; complete physical and chemical analysis of cloths; testing of waterproof and rainproof quality of cloth, garments, and umbrellas; determination of methods of proofing. In fact, he may be called upon to examine and test any kind of wearing apparel, from shoes to hats and any kind of textile fabrics used in or out of the household. For this he has worked out many standard tests and has devised a variety of machines for carrying them out.

There is now no systematic course of training for textile chemists in our universities, though, should the legislation before mentioned be passed, there will be instantly a demand for them. The department of home economics might logically be the place for much of such training. The training of the textile chemist should include the following subjects: elementary chemistry, qualitative and quantitative analysis, organic chemistry, physics, study of plant structures, textile fibers and their microscopic identification, textile chemistry, textiles or the study of materials, laboratory methods of textile analysis, dyes and dying, and the practical study of manufacturing and finishing processes. If the department of home economics is a part of a university then the science courses should be taken in the regular science department of the university. If it is not a part of a university, most of these courses may be given in home economics departments, but should be given by science specialists. The other courses recommended may be offered as home economics courses. Most of the textile courses given at the present time lack the practical and detailed study required for a textile chemist.

THE PLACE OF TEXTILES IN THE HIGH SCHOOL CLOTHING COURSE

ZELLA E. BIGELOW

University of Idaho

With the broadening of the high school clothing course, the emphasis has shifted from clothing construction, and the broader courses include the choice, selection, and care of clothing in relation to their hygienic, economic, and social aspects.

This shifting of emphasis has had a marked effect upon textile courses. Textiles in relation to clothing construction is one thing. Textiles in relation to the selection and care of a wardrobe and of household furnishings from the standpoints of hygiene, good taste, economy, and one's social economic responsibilities is another and a bigger problem.

The textile course cannot be isolated from the clothing course but should be looked upon as a component part of it, based upon and developing with it, taught only in connection with it, and planned from first to last to contribute to it and to find its applications in it. The content of the textile course should therefore be determined by the content of the clothing course.

To equip a girl to handle adequately her clothing problem, the clothing course in its entirety must cover the following phases:

Planning. The need for the garment. How to secure it.

Note: Planning is a mental job and must precede the actual securing of the garment. This is probably the most neglected of all the phases of clothing study.

Designing. Beauty of costume. Line, color, structure. Suitability of material and style to figure, coloring, and personality of wearer. Suitability of material and style to use of garment.

Hygiene. The relation of clothing to health.

Cost. The clothing budget. Relative costs of materials. Relative costs of homemade and ready-made garments. Cost of upkeep.

Buying. Materials. Ready-made garments.

Constructing. The use of patterns. Hand sewing. Machine sewing. Fitting.

Care. Repair. Daily and seasonal care. Cleaning and laundering.

The consumer's responsibility. The clothing industry. Local conditions.

Since these subjects seem to cover the entire clothing field, the question might arise here as to the line of demarkation between the high school course and the college course. It should be kept in mind that the outline comprises a maximum list subject to the varying conditions obtaining in the different kinds of high schools. All of the work would differ from college work in being more elementary. Advanced dressmaking and millinery problems, originality

in designing, and the larger social and economic phases involved in the consumer's responsibility are features of the clothing field which should be reserved for the college course.

What should be the content of the textile course based upon the clothing course as outlined above? A working knowledge of standard materials, covering their characteristics, properties, widths, and cost, is essential. This essential knowledge is based, of course, upon a study of the fibers, and the nature and characteristics of both fibers and materials should be thoroughly understood by the pupil. The aim of the study should be to enable the girl to make practical application of her information. A study of the properties of fibers and materials which affect their relation to health must be included, also simple and practical tests for the identification of fibers. The properties of fibers and materials which affect their laundering qualities should be known. A study of the production, manufacture, and distribution is necessary only so far as they affect cost and are related to the girls' responsibility as a consumer.

What are the best methods of teaching textiles to high school girls? Possibly the first essential in real teaching is to make a connection between the need for the information and its application on an actual problem. The study of a fiber and of materials should be taken up intensively at the time when a definite project requires the actual selection of such materials. The textile study, because it is essential to the solution of the given problem, thus becomes a real part of it and is undertaken eagerly by the student. Only so much textile study as is needed for the solving of the given problem should be taught, since it is doubtful whether a high school girl makes a postponed application of any information.

As to the order of the textile course, since it is based upon the clothing course it must follow the order of the latter. This does not necessarily work to the disadvantage of the textile course, but care should be taken to plan the clothing course to include problems chosen for their bearing on the textile content, thereby introducing the textile study which should be put over to the girls.

For the improvement of our courses of study and to make textile teaching vital, every effort should be made to teach fundamentals thoroughly, to teach only such principles as find application, to teach them at a time when application can be made immediately, and to relate the textile study closely with the clothing course.

EXTENSION WORK IN CLOTHING

DORIS SCHUMAKER

Cornell University

The problems relating to extension work in clothing are the same as those relating to resident teaching, except that they are multiplied many times because of the number of people interested and the large territory to be covered. The aim of the extension program in clothing is to assist the women to solve their clothing problems with greater ease, efficiency, and satisfaction. Usually women confuse the terms clothing and sewing, therefore in the early stages of clothing problem development it is necessary to point out, through various methods, the fact that women have a clothing problem beyond the immediate one of the construction of the season wardrobe. Extension is concerned primarily in teaching principles of selection, construction, and care, which will enable women to become independent in thought and to develop selective judgment and technique by which they will be independent. In carrying out this program, the best method which we have discovered is the use of local leaders. One or two women are chosen from each community, who have had some training and who are willing to meet the agent or specialist at regular intervals to consider various phases of the program and to receive instruction. They in turn, go back to their own community to give instruction in subject matter and to organize the neighbors, thus creating in their own communities a demand for better materials, larger assortment of accessories than is usually carried in the village or rural stores, and textile testing departments in the larger centers.

The subject matter included in an extension program is essentially the same as that included in a program for resident teaching. The approach must of necessity be very different. One of the biggest opportunities in extension teaching is that of giving to the women a point of view, with reference to clothing, which will increase their knowledge of and respect for home economics generally.

Few women have any knowledge of the financial condition of the family, or are allowed any degree of economic indebtedness in the dispensing of the family income. Through connecting up the clothing problem with the economic factors which it appraises, women are beginning to realize economic values in the home.

REPORT OF THE COMMITTEE ON THE STANDARDIZATION OF TEXTILE FABRICS

SUBMITTED BY MIRIAM BIRDSEYE, CHAIRMAN

At the annual meeting of the Association at Colorado Springs, June 1920, the Committee on the Standardization of Textile Fabrics was subdivided among the following sub-committees:—
Study of Purchasing Habits, Ethel Phelps, University of Minnesota; Research on Minimum

Standards, Grace Denny, University of Washington; Cooperation on Minimum Standards, Miriam Birdseye, States Relations Service; Publicity, Marie Sellers, New York City; Legislation, Helen R. Goodrich, Michigan Agricultural College; Business Manager (for petticoats), Ina K. Pitner, New York City. The following were placed on the committee as advisory members: Mrs. Mary Schenck Woolman, Boston; Mrs. Ellen B. McGowan, Teachers College; Elizabeth Weirick, Chicago; Mabel Trilling, University of Chicago; Zella E. Bigelow, University of Idaho; Ruth O'Brien, Iowa State College; Margaret Gleason, College of Industrial Arts, Denton, Texas.

Work has proceeded along all these lines during the past year. The reports of Miss Phelps and Miss Denny, Miss Sellers and Miss Goodrich, follow. The report on Cooperation on Minimum Standards was given as one of the papers at the general session, June 29.

The two outstanding pieces of work for the year have been the completion of the petticoat test and securing the cooperation of the National Research Council in financing and carrying forward the research work on an accelerated wearing test and kindred tests that must be preliminary to the work of determining minimum standards.

Owing to the illness of Mrs. McGowan, who undertook the summarizing of the tabulations made when the wearing records of the test petticoats were turned in in April of this year, it is not possible to give a full report on this phase of the Committee's program. It will appear later in the JOURNAL. The advance report that has reached the chairman seems to indicate that this summary will be of the greatest interest, as indicating avenues for further study along this line.

The report of the business manager for the Committee will appear later in the JOURNAL. The petticoat transactions are not yet quite closed up, but it is expected that they will be before the end of July. Pending the winding up of the petticoat account, members of the Committee have assumed responsibility for the temporary deficit of about a hundred dollars that was created when the final payment on the silk had to be made.

Fifty yards of silk have been turned over to the Committee to be used for laboratory tests in connection with the wearing tests for the six experimental weaves of silk, and a limited number of orders for yard and half yard lots can be filled by the present chairman, who is acting as custodian of this material, most of which will be used at the United States Bureau of Standards. Address Miriam Birdseye, 1709 Rhode Island Avenue, N. W., Washington, D. C. This silk is valued at approximately one hundred dollars, an average value of two dollars a yard direct from the manufacturer.

It seems probable that, on account of the fall in the silk market, the Committee will not be able to repay the loan of two hundred dollars made by the Association, which was to be refunded if the profits of the petticoat transaction permitted.

The Committee wishes to thank all those members of the Association and others who have helped carry through the petticoat test, and to urge them to study carefully the report on this test when it appears in the JOURNAL.

REPORT OF SUB-COMMITTEE ON LEGISLATION

SUBMITTED BY HELEN GOODRICH, CHAIRMAN

The work of this sub-committee for the year 1920-1921 has been educational in character. Every endeavor has been made to train the home economics field, and through them the textile consumer, in the need for and value of textile legislation. This was done for two reasons: first, because of the change of administration and the shift from democratic to republican preponderance of power; second, because, as an organization, the American Home Economics Association threw all its influence with the Women's Joint Congressional Committee in support of the Sheppard-Towner and the Fess bills and it seemed better to concentrate all legislative effort.

It was useless to attempt active legislative work until after March fourth. In the meantime an attempt was made to inform the field of the situation. In October a letter was sent to members of the Committee on Legislation, summarizing the status of textile labeling and misbranding bills. Detailed study of the bills, and publicity through classes and Women's clubs were urged.

In order to enlist the cooperation of the committees on legislation in the State Federations of Women's Clubs, a letter was sent to the State Chairmen of the Textile Committee and to the members of this sub-committee asking them to urge the State Federations to pass resolutions endorsing and supporting misbranding legislation, as embodied in the Barkley Misbranding Act and the Rogers Honest Merchandise Act of 1920, at their annual meeting this year. Response to this was very poor and only two copies of resolutions were received.

The work of this sub-committee continued to be largely educative in character even after the assembling of the new congress. As soon as the Congressional Committees were appointed under the new administration, a letter was sent out to the members of this committee and to many other home economics workers in the field. Altogether 371 copies were distributed. This letter enumerated the advantages of the Rogers bill and requested that they write their representatives and senators, endorsing the bill, and asking their support.

We have been constantly in touch with the secretary, Mr. John Jacob Rogers. According to his latest report the bill is still in the hands of the Committee on Interstate and Foreign Commerce.

REPORT OF SUB-COMMITTEE ON PUBLICITY

SUBMITTED BY MARIE SELLERS, CHAIRMAN

The work of the Committee on Standardization of Textiles during the past year has been of a nature that lends itself to popular publicity. This, coupled with the fact that the editorial space in most of the magazines has been decidedly limited, on account of tight advertising conditions, has made it undesirable to request the publishing of news items of the committee's activities.

Miss Harriet Mason of "The Ohio Farmer" reports that the farm papers have been publishing a great deal bearing upon a certain phase of standardization—the textile fibres supply and the standardization of woollens and worsteds.

Mrs. Beatrice Hastings of the Economist Group of business papers reports that these trade publications are very much interested in standardization of textiles and that Mr. S. H. Ditchett, Editor-in-Chief of the Dry Goods Economist, has recently been speaking on this subject to groups of manufacturers. The movement seems to be meeting with considerable opposition or at least indifference on the part of the majority of the wholesalers, and retailers.

REPORT OF SUB-COMMITTEE ON STUDY OF PURCHASING HABITS

SUBMITTED BY ETHEL L. PHELPS, CHAIRMAN

Summarizing the whole survey of purchasing habits, it will be seen that a few fabrics in each group or class of materials, i.e., wool, silk, and cotton, are of outstanding importance. For this final summary all results were combined, omitting only those items where less than 100 returns were made. The following information is obtained as a result:

Wool fabrics (service dresses), 34 materials, 1144 cases. Silk fabrics (service dresses, underskirts, underwear, coat linings, dress foundations), 34 materials, 1612 cases. Cotton fabrics (underskirts, underwear, dress foundations, children's dresses), 36 materials, 1229 cases.

Seven, eleven, and fourteen of these three groups of materials, respectively, are used for approximately 94 per cent of the garments reported for each group. These materials are listed below in the order of their popularity, as indicated by their percentage use.

Wool Fabrics	Silk Fabrics	Cotton Fabrics
serge	satin	nainsook
tricotine	taffeta	sateen
jersey	jersey	longcloth
poplin	crepe de chine	muslin
broadcloth	china silk	cambric
gabardine	georgette	gingham
velour	pussy willow	net
	tricolette	lawn
	poplin	percaline
	velvet	voile
	foulard	crepe
		batiste
		percale
		Devonshire cloth

As evidenced by this survey, these thirty-two materials, in the order named, are worthy of consideration for standardization.

REPORT OF SUB-COMMITTEE ON RESEARCH ON MINIMUM STANDARDS

SUBMITTED BY GRACE G.¹DENNY, CHAIRMAN

This Committee reports the following work in progress or in anticipation:

Miss Trilling of Chicago has made a contribution in the field of educational tests. Miss Phelps of the University of Minnesota has studied Purchasing Habits.

Some work has been done on conduction and radiation of heat in different fabrics and on absorption and evaporation of water. Miss Caton of the University of Missouri reported a beginning made in these studies. Investigations on the heat retaining properties of fabrics were made during the war by the Bureau of Standards. Prof. Geo. B. Haven of Massachusetts Institute of Technology has made thorough tests on "Comparative Radiation of Heat from Blankets."

Miss Swenson has been working with Mrs. McGowan at Teachers College on the effect of alkaline cleansing agents upon textile fabrics. Extensive studies on this subject have been carried on at Mellon Institute. (For results of this work, see "The Conservation of Textiles"—published by The Laundryowners National Association in 1920—\$1.00.)

Mrs. McGowan, Miss O'Brien and Miss Storms tested taffetas and messalines for the Standardization Committee.

Miss Hickmans of the University of Toronto made a study of labels on fabrics and the relation of price to composition. She reports an investigation of silks in progress. In 1917, Miss Glanton made a study of wool fabrics and, in 1920, Miss Denny investigated blue serge for the Standardization Committee.

The Committee on Research feels that little more than a beginning has been made on any of the subjects. The commercial world is realizing the benefits to be derived from textile research. Work done for the Laundryowners National Association and the Cotton Manufacturers Association are illustrations. At the University of Washington, a \$600 fellowship in textiles has been established by a Seattle department store.

The Committee recommends the publication in the Journal of Home Economics of scientific literature bearing upon textile research and also the results of textile testing by the Bureau of Standards, Massachusetts Institute of Technology, Mellon Institute, and research carried on by manufacturing plants or manufacturers associations.

It further recommends reports on research in progress and cooperation between institutions interested in the same line of study.

ROUND TABLE, SOCIAL SERVICE COMMITTEE**June 29****Lucy Gillett, presiding****A SOCIAL POINT OF VIEW****MARGERY M. SMITH***Director Dietetic Bureau, Boston*

First contacts with families and agencies in the social field are fearfully illuminating in their revelation of the distressing problems of human life. Low mentality, ignorance, superstition, poverty, inertia, immorality, sickness, lax family discipline, and unwise use of income encourage atrocious living habits. What portion of this complex of social problems can the nutrition worker hope to untangle? How can she best be fitted for her task?

Social work since the beginning of this century has changed its emphasis from remedial to preventive measures which strike at the root of social problems. Social work has come to mean a large group of specialized activities in the field of social betterment. The nutrition worker is a social worker in a specialized field. As in other fields, there is danger in too early specialization. The nutrition specialist must be able, not only to see nutrition problems, but to see them in relation to other social problems. Case work affords a valuable opportunity for the nutrition worker to study family problems as a whole, and to become familiar with social agencies.

The nutrition worker with a well developed social point of view realizes: that nutrition problems cannot be considered apart from other social problems; that nutrition problems are not only food problems, but also problems of physical defects and bad habits of hygiene; that it is futile to work alone, and that the effectiveness of her own work will depend upon her coöperation with other health and social agencies; that one's ideas of relative values may change; former essentials of daily living become non-essentials and even impossibilities under certain conditions; that effective teaching is simple teaching; that a sympathetic understanding of human nature is of primary importance, but that it is wiser to cultivate a philosophical, rather than an emotional, point of view; that a knowledge of the basic principles of child discipline is needed in combating lack of parental control, one of the greatest handicaps in her work; that a knowledge of practical psychology, particularly child psychology and the psychology of habit formation, is indispensable to the nutrition worker.

Finally, a well developed social point of view gives the nutrition worker a vision of nutrition needs and possibilities, reaching beyond her own community into a universal health program which shall eventually provide adequate nutrition teaching and care for all communities, particularly for all young children with whom real preventive work along nutrition lines may be done.

ROUND TABLE, COMMITTEE ON ECONOMICS AND THRIFT

June 29

Martha Van Rensselaer, presiding

THE HOME SERVICE DEPARTMENT FROM THE BANKERS' VIEWPOINT

JOSEPH H. SOLIDAY

President of Franklin Savings Bank, Boston

Recent developments, the war, and the increase in other methods of saving have made the Mutual Savings Banks realize that they had a distinct place in the community which could be taken by no other organization. In order to maintain their position as an instrument of service to the people of the community, Mutual Savings Banks are realizing that they must make known to the public the advantages which they have to offer.

Hundreds of schemes for increasing savings accounts are being presented to savings bank officials and they are ready to take hold of those things which promise to do the most for them and for the people whom they serve. The Home Service Department in a bank, which is offered by home economics workers, is one more of these projects to increase savings bank accounts. It is of interest to the bankers because it not only advertises the bank, but is a means of doing constructive work in the community, and has a lasting result, and for that reason seems to be of greater value than ordinary advertising.

The bankers are looking to the home economics group of women to make good in this work and prove that the thing which they offer is really of constructive value and can bring a direct return to the bank as well as to the community.

THE HOME ECONOMICS BUREAU

SARAH J. MACLEOD

Society for Savings, Cleveland

The Society for Savings has always been looked upon not only as an institution which receives the people's savings but also as one which promotes and fosters thrift. Under the leadership of its President, Mr. Myron T. Herrick, it decided that a distinct service could be rendered by having in the bank someone whom people could consult about questions of personal family and finance. This decision resulted, in June 1918, in the installation of the Home Economics Bureau under the directorship of Miss Wardall of the University of Iowa.

The major work of the Bureau consists of interviews in the bank. People bring their problems of personal and family finance to the Bureau; each case is treated individually; and when desired, blanks for household or personal

expenses are given. The important thing, however, is not the account book we give; it is the advice and plan for the use of the income which is paramount. The account book is simply a tool which will show how closely a plan is being followed. The account books and budget leaflets are valuable adjuncts to the Bureau but the opportunity of getting impersonal and unprejudiced advice is what people most need and desire. The first interview is only a starting point, people are invited to come back to the Bureau as often as they desire for further help and information.

The range of incomes with which we have dealt is from \$1200 to \$30,000 a year. It is quite necessary to keep in mind that the person with a large income has quite as pressing a problem as the person on the smaller income, and indeed I am beginning to think that it is not until an income is of a size to admit of choice, that difficulties arise.

The publishing of budget leaflets is another important part of the work. We find that leaflets for single people on incomes from \$85 to \$250 a month; for newly weds on incomes from \$125 to \$400 a month; and for various sized families on incomes from \$150 to \$800 a month are the ones that seem to be desired. These figures we base on Cleveland conditions and prices, together with the material which we gather at the Bureau. In the case of all our leaflets we simply say that they are based on minimum saving and maximum spending and that anyone should do as well as we suggest and that many ought to be able to do much better.

The Bureau is called upon frequently to give talks on thrift, budgeting, and systematic saving to all kinds of organizations, such as factory and department-store groups, public and private schools, and women's clubs. We have never tied up the new accounts or deposits in any way; we feel that we want no strings tied to the service, but it would seem that through the Bureau many have saved who have never saved before. Others have increased their savings, in some cases doubling them, although the incomes have not been increased. Still others have made adjustments in their spending so that they have obtained a better balanced living and this has resulted in greater happiness and savings in the family.

Accomplishments such as these make the Society feel that the services of a Home Economics Bureau are a distinct contribution to its depositors and to the community.

HOME SERVICE IN BOSTON BANKS

S. AGNES DONHAM

Society for Promotion and Protection of Savings, Boston

Mutual savings banks exist because *people* need protection for their savings, but also because they serve the business of the community. Without willingness to serve business, a bank would become merely a safety vault—the

napkin in which to wrap the talents of the unproductive servants. Without the savings of many people, and particularly of the large group of small savers, the bank could not serve business effectively. Without a strong sense of the possibilities of *service* to both of these factors in its existence, a bank becomes a drag upon the progress of the real things in the life of the community.

The banks which have formerly given service to business must, if they are to meet all of their possibilities, turn a part of their attention to the people who furnish the money which makes half of the reason for the existence of the bank. To meet this necessity for service to the people, home service departments are developing. To the Society for Savings in Cleveland belongs the honor of having had the vision. To each bank official, who is a servant of the people who deposit in a savings bank, there comes the necessity of decision as to how far he will help to make that vision real.

What is a Home Service Department? It is a department of the bank which will assist the customers in solving personal household problems of finance based upon assistance in wise spending and systematic saving. People with medium-sized incomes have no accredited place where they may obtain such assistance. The vision includes:

1. A department worker trained in home economics, but willing to learn banking terms and methods and the needs of *her* bank. It is possible to graft successfully a knowledge of the service which individual banks require from such a department upon home economics training and experience.

2. A bureau of information where timid people may come for assistance.

3. A department where interest is shown in the solving of each problem of the household, and follow-up work is done, but where the service is confidential and *impersonal*.

4. A department where the industries of the community can come for assistance in estimating the financial needs of their employees, and receive active help in promoting savings plans.

5. A place where groups of depositors may be invited for discussion of all problems of household finance, ways of saving, safe investment of their surplus funds.

6. Marketing lessons which will teach wise buying of clothing, food, and furnishings.

7. Lectures on food values and menu making would result in wise buying which would increase savings, and, at the same time, help to standardize the stocks in local shops.

8. Coöperation with insurance agents would make the department useful in another way.

9. If such a department is 100 per cent effective there will be coöperation between organizations, public health committees, schools, and all educational movements, and particularly with the public library. There are possibilities of a lending library for us in connection with the work.

10. A laboratory with exhibition of labor saving devices furnished by local dealers could be used effectively. A reference file with facts about food and clothing available for the use of depositors, with the assistance of the expert in its use, would be very valuable in a community.

The cost of such a bureau will vary and depend upon the bank. It must include salaries, printing, advertising, and clerical service; but as the money spent increases, the amount of service possible will be increased in far greater ratio.

In the demonstration of such a service which was made during the month of May in six Boston banks by the Association for the Promotion and Protection of Savings, we had many interesting experiences. While several customers seemed relieved when told that there was no charge for the service, many more expressed their willingness to pay for it, and the expressions of gratitude and assurances that we had given help were almost universal.

SCIENCE SECTION

June 30

Minna Denton, presiding

THE DEVELOPMENT OF INVESTIGATION AND RESEARCH COOKERY FROM THE FIELD OF EXPERIMENTAL COOKERY

DAY MONROE

Department of Foods and Cookery, Teachers College

Terminology. We prefer the use of the words "investigation" and "research" since they describe the type of work we are doing more accurately than does the term "experimental." To the layman an experiment is the trying of something to see whether it will work. The less a cook knows the more "experimental" is her cooking. "Investigation" and "research" presuppose care, accuracy, training for the work, and scientific knowledge.

Requirements for investigation work in cookery. The student must have a knowledge of cookery, chemistry, physics, nutrition. She must develop accuracy in laboratory procedure and in thinking.

Plan for a semester's work in investigation in cookery. The development of accuracy on the part of the student by directed investigation work on class problems.

The choice of a problem by the student, and some original work by her on this problem.

Investigation Problems Attacked last year at Teacher's College

Ice Cream Making. In freezing ice cream what proportion of ice to salt gives the best texture and the largest volume of ice cream?

Baking Powder Mixtures. What is the effect of standing, before baking, upon the volume and texture of biscuits, muffins, cake, and similar baking powder mixtures?

Mayonnaise. What is the effect of the temperature of the ingredients of mayonnaise upon the tendency to curdle?

Fondant making. Should fondant be cooked rapidly or slowly? What is the best method of regulating the crystallization of the sugar? (The Department of Biochemistry cooperated.)

A study of Fat Used for Deep Fat Frying. Is there a limit to the number of times a fat can be used for deep fat frying? (Reported at this meeting by Miss Barber. Department of Biochemistry cooperated.)

The Pressure Cooker. What is the effect of the pressure cooker upon the color and upon the vitamin B in cooked cabbage? (Department of Biochemistry cooperated.)

Economic Studies. What buying habits of women effect the retail price of food? What are the relative merits of package and bulk goods? What can be done to help the housewife to know grades and varieties of foods so that she may be a more intelligent purchaser. What is the function of the cooperative Buying Clubs now organized in New York City?

What we hope to accomplish through teaching investigation in cookery.—Investigation in cookery is required of all of our students who major in foods and cookery, because we believe it should be of value in developing the type of student who will do the best work in household arts after she leaves college.

Our aims are: To give the student a broader viewpoint of cookery; to develop intellectual honesty and the ability to judge fairly; to make the student open to conviction and eager for progressive ideas; to shatter preconceived fallacies; to make the student willing to say "I don't know" when she realizes the wide field of unknown before us.

REPORT OF A SPECIFIC RESEARCH PROBLEM

A STUDY OF FAT USED IN DEEP FAT FRYING

MARY I. BARBER

Department of Foods and Cookery, Teachers College

The study was carried on with the coöperation of the biochemistry department.

Problem. A study of the fat used in deep fat frying. Doughnuts the food fried in the deep fat. Twenty fryings made.

Object of the investigation. (1). To determine the number of times a fat (lard) can be used effectively in deep fat frying. (2). To determine the corrective measures which would increase the efficiency of the fat used for deep fat frying. (3). To determine the chemical and physical effect of deep fat frying upon the fat used. (4). To determine whether the amount of fat absorption in deepfat frying is affected by the number of times a fat has been previously used.

A full report of this investigation will be published later.

THE ORGANIZATION AND POSSIBILITIES OF COÖPERATIVE RESEARCH IN COLLEGES

WALTER H. EDDY

Associate Professor of Physiological Chemistry, Columbia University

The following represents a brief outline of the reasons underlying the establishment of the Teachers College Institute of Practical Arts Research, its methods of organization and procedure, and the purpose of its presentation here as a stimulus to coöperative effort in connection with other institutions. The data outlined at length in the discussion before the Association may be summarized as follows:

A. Reasons for the inception of the plan.

1. Preparation of leaders and teachers of practical arts demands that their training stress the interrelation of departments and a proper evaluation of the contributions that departments of instruction and investigation can make to the problems they will meet in the field.
2. The limited time of students, due to their preparatory courses renders impossible the ordinary methods of academic research if the contact with investigation methods is to be brought into the experience of the larger masses of students.

Conversely, any research worthy of the name requires continuity and thoroughness, and, if the work is to be done by succeeding groups of students working on the piece-work plan, there is needed a coordinating body of permanency to bind these efforts together, assure a finished product, and prevent premature publication.

3. The selection of problems for investigation requires a knowledge of practical needs, a knowledge of what has been accomplished in the past, and of what lines other institutions are pursuing, to avoid duplication of effort and to conserve time and effort; and, finally, the guidance of as many view points as possible to increase production and insure reliability and value to results.

B. The Teachers College plan embodies the following features:

1. The organization of an Institute of Practical Arts Research under the direction of a committee composed of heads of the respective departments, and super-departmental in financial support and direction. This arrangement leaves the departments free to such autonomy as they have always enjoyed, but permits added effort and support in directions of productivity such as are of common interest and of general value to the public and the progress of the subject.

2. The financial support is in the form of a fund, augmented by the trustees as needed but not subject to annual accounting, awards being made on a basis of problem needs and not on time basis.
 3. The award of problems and support is made by the committee to departments after consideration of recommendations by these departments to the central body, and such apparatus, assistance, and distribution of work is made as to insure solution of problem with due regard to protection of students and teachers from interference with routine teaching.
 4. A reviewing board passes on the completed work and controls publication to insure reliability of published reports and to protect the name of the institution.
 5. The institute is authorized to accept and attempt the solution of commercial problems and to sell these results to the employing firms subject to certain rules of release and procedure.
- C. Examples to illustrate the practical working of the scheme and its effect on both production and training are:
1. Cleansing agents.
 - a. Surveys and reports by household administration students, of agents purchased by the purchasing departments of hotels, and why.
 - b. Chemical analysis and effect of agents on textiles, by household chemical departments.
 - c. Practical laundry tests, by laundry department.
 - d. Washing machine studies, by physics department. Coördination of this data to compile standards for future tests.
 2. Doughnuts.
 - a. Quality and technique by cookery.
 - b. Relation of composition to fat absorption already covered in part by Dr. Denton.
 - c. Changes in frying fats on repeated use, by physiological chemistry department.
 - d. Experiments on clarifying methods, by combined departments. Coördinated results—standards for business and schools.
- D. Results already show these trends.
1. Vivifying of teaching and stimulation of interest and appreciation of the relation of departments to one another.
 2. Increase in applicants for participation in the actual research.
 3. Better appreciation, by departments, of one another's needs and problems.
 4. Need for extension of the coöperative movement to institutions of similar type.
 5. Need for better publication facilities, abstracts, and bibliographical reviews.

THE BASAL METABOLISM OF WOMEN AND UNDERWEIGHT CHILDREN

KATHARINE BLUNT

University of Chicago

The basal metabolism, or the calorie production of the individual when living perfectly quiet without food, was determined by the comparatively simple Benedict portable respiration apparatus. The first subjects were normal young women, for whom it was found that there is no regular periodic variation in metabolism during menstruation. In another group, 20 underweight young women students referred to us by the physical training department, the basal metabolism did not vary from that expected for normal weight women; that is, their underweight did not seem to affect their metabolism.

Underweight children, on the other hand, members of the Child Health School at the University, showed abnormally high metabolism. Their food requirement, therefore, was higher than that of normal children, while in practice they tended to eat less.

PRELIMINARY REPORT ON THE EFFECT OF COOKING FOODS IN THE PRESSURE COOKER ON THE BIOLOGICAL VALUE OF SUCH FOODS

LOUISE STANLEY AND RUTH WHIPPLE

University of Missouri

The object of these experiments was to find out whether or not foods prepared in the pressure cooker were as effective in promoting growth in white rats as the same food raw. We have worked upon food mixtures of definite compositions rather than purified food substances. We hope, if this is definite indication of loss of value in the cooking of these foods, to analyze the results with quantitative technique, so as to determine to what specific constituent the result is due.

The first diet used was: cornmeal 85 per cent, dried skim milk 15 per cent, dried spinach 5 per cent.

Growth was obtained on this which at first seemed normal but later appeared to be less than normal. There was no reproduction on this diet.

The animals, fed on this food, cooked for half an hour with water at 10 pounds pressure, showed slightly less growth, while the curve of the animals, fed on the same food cooked for one half hour at 24 pounds pressure, was still less satisfactory.

Two animals were fed on the same food heated dry at 10 pounds pressure. One died after sixty days on this food, and the other showed small scabs appearing over the left side of the body.

The second diet was: corn meal 75 per cent, skim milk 15 per cent, crisco 10 per cent (added after sterilization). With an equal amount of canned tomatoes. This diet raw gave more satisfactory growth but as yet no reproduction.

One of the rats, on the food cooked at 10 pounds pressure, gave birth to eight young, one of which died at two weeks and all of which were decidedly below normal weight for this age.

One of the rats, on the food cooked at 25 pounds pressure, gave birth to seven undersized young, all of which were eaten during the first day except one which was put aside to be preserved in alcohol.

While we do not feel that we can draw any conclusions from the data up to the present time, the results would seem to indicate that their food cooked in a pressure cooker for the time and pressure indicated is less efficient biologically than the same food raw.

EMULSIFICATION IN MAYONNAISE

KENNETH L. MARK

Professor of Chemistry, Simmons College

The progress of the emulsification of oil in egg yolk was studied by taking samples of mixtures every ten seconds during the process of beating the ingredients together, and then observing, at a magnification of 660 diameters, the degree of dispersion of the oil in the samples.

It was found (1) that if the proportion of oil to that of the egg or of the emulsion already produced was kept below a certain maximum a stable emulsion always resulted, no matter what the temperature or manner of beating; (2) that if the proportion of oil exceeded a certain minimum the egg or the emulsion which had already been made always became dispersed in the oil and no permanent emulsion was formed; (3) that if proportions between these limits were used a permanent emulsion might or might not be formed, dependent on such variables as temperature and manner of beating; (4) that if the egg was previously diluted by adding vinegar the proportion of oil which could be permanently emulsified was greatly increased during the addition of the first and second portions of oil, but that as the viscosity of the mixture increased the maximum ratio of oil to emulsion rapidly approached the value found when egg alone was used.

Further work on this subject is in progress.

STUDIES OF THE BACTERIAL FLORA OF HOME CANNED VEGETABLES

HAROLD L. LANG

Professor of Biology and Public Health, Carnegie Institute of Technology, Pittsburgh

Bacteriological examinations were made of 938 cans of vegetables packed under home conditions; of these, 302 were spoiled, and 636 were in good condition. The products included peas, corn, lima beans, asparagus, string beans, spinach, chard, okra, field peas, carrots, summer squash, and tomatoes. While most of the vegetables were packed in glass jars many packs in tin were included. Most of the vegetables were processed in the water bath, but about 10 per cent had been processed under steam pressure.

The investigation showed the following results: Home canned vegetables in first class condition are not necessarily sterile, but frequently contain the spores of resistant soil bacteria. These spores, however, do not cause spoilage provided the can has a good vacuum and the seal remains tight. Living, vegetative bacteria are not found in canned goods of good quality, except in the case of leaky containers. Yeasts were found only twice and then were isolated from leaky cans. Molds were isolated from about five per cent of the spoiled cans, where the seal had been broken.

Three groups of bacteria occur in home canned foods; aerobic species, anaerobic species, and thermophilic bacteria, the latter including both aerobes and facultative anaerobes. The following species of aerobic soil bacteria were isolated: *B. subtilis* (Ehrenberg), isolated 120 times; *B. mesentericus* (Flügge), isolated 115 times; *B. vulgatus* (Flügge), isolated 96 times; *B. megatherium*, isolated 28 times; *B. cereus*, isolated 25 times; *B. vaculatus*, isolated 12 times; and *B. mycoides*. Twelve other members of the *B. subtilis-mesentericus* group not corresponding to any of the known species were isolated. All anaerobic bacteria found produced gas vigorously in dextrose media at 37°C. The most frequent cause of spoilage was one strain (or possibly several closely related strains) of butyric acid organism isolated from 185 cans of spoiled corn, peas, and lima beans. Spores of this organism resisted 100°C. for six hours, as well as intermittent processing at 100°C. for one hour at intervals of 18 and 24 hours. *B. Welchii* was isolated several times. Eight strains of true thermophilic bacteria and seven strains of facultative thermophiles were isolated. These probably play a part in the spoilage of canned goods, since they may develop during the heating and cooling of the cans between 40° and 60°C.

The frequency of occurrence of the spores of bacteria in cans of good quality varied from 20 per cent in the case of tomatoes to 80 per cent in the case of spinach. Spores of the *B. subtilis-mesentericus* group were able to withstand 100°C. for periods varying from 5½ to 10 hours. Four successive heatings

at 100°C. for 1 hour and 1½ hours, both at intervals of 18 hours and 24 hours, also failed to kill the spores of some strains.

No organisms resembling *B. botulinus* in its cultural or morphological characteristics were found. Anaerobic butyric acid bacteria were not isolated from cans of good quality.

RESEARCH WORK IN HOME ECONOMICS IN THE UNITED STATES 1920-1921

MINNA C. DENTON

Presented by C. F. Langworthy by request

The term "research work in home economics" in this report was interpreted very broadly to include not only the materials dealt with but also methods of instruction and problems in social welfare.

Twelve colleges and four United States Government departments, representing twelve states and the District of Columbia, sent the titles of nearly a hundred such research problems. By far the greatest number dealt with foods and nutrition, there being 67 in this group, 11 under the general subject of education, 8 under social welfare, 6 under clothing, and a few more under miscellaneous headings.

Many of these problems have been studied as part of the requirement for the master's degree, and the results of not a few have been published in the various scientific journals, thus making them a permanent contribution to the subject matter of home economics.

In addition to presenting the report, Dr. Langworthy gave some information regarding work of the Office of Home Economics published in technical bulletins of the Department of Agriculture, and also in professional and technical journals.

INSTITUTION ECONOMICS SECTION

June 30

Mary Lindsley, presiding

HOUSING FOR BUSINESS AND PROFESSIONAL WOMEN¹

BLANCHE GEARY

Architectural and Economic Bureau, National Board, Y. W. C. A.

Many thinking men and women still imagine that "girls live at home," though twelve million or more are said to be at work in the commercial and

¹Various cooperative housing plans are suggested in "Housing for Employed Women Away from Home," The Woman's Press, 600 Lexington Ave., New York City.

industrial world. A very large but undeterminable proportion of the twelve million no longer can or will live at home.

Men everywhere are studying the problem of housing the working man and his family. It is well known, too, that everywhere the single man, or the man and his family, have the preference, and that the single woman or girl must take what is left of the accommodation available. There is, therefore, even a more critical need for just as thorough a study of the problem of housing girls and women who live and work away from home. Furthermore, no study can be complete which does not also take into consideration the needs of the girl students in the large and small educational centers, for, in many places, the educational enrollment far exceeds the capacity of the neighborhood in rooms and beds. A thorough study of the subject must also include the welfare of the women and girls who travel of necessity; in many cities hotel accommodation is not to be had, or single rooms are at a premium.

The steadily growing number of women and girls in the gainful occupations in the United States has greatly intensified the danger of the critical situation recognized before the war by the Young Women's Christian Association and other organizations in touch with the housing problem. We were then aware of the fact that an enormous percentage of applicants for rooms were unable to satisfy themselves, for there was nothing to be had. During the war hundreds of thousands more workers increased the pressure on existing accommodation and, up to the present time, no construction that in any way meets this need has been put through. During this same period the wages of men have gone up by leaps and bounds; the wages of women have increased to some extent, but not to the same extent. The typical landlady still prefers, according to her wont from time immemorial, to rent her accommodation to any man rather than to the nicest girl. There is little question that in the majority of cities and towns, so far as girls and women are concerned, a deplorable condition exists.

Nothing but the "cheapest possible" quarters can be purchased by the girl earning a minimum living wage, and the cheapest possible in actual dollars and cents is almost always the worst from the point of view of overcrowding, sanitation, and moral strain. What, then, are the chances for the girl who is not yet earning a minimum living wage, since even those business and professional women who have large resources have their difficulties?

For a number of years the Young Women's Christian Association has done what little it could to meet the emergency by providing a relatively small number of beds. There are approximately 8,000 beds under the Young Women's Christian Association roof in the United States of America. Several years ago this provision more nearly met the need; today it is utterly inadequate in the majority of towns and cities.

The made-over mansion. Some fifty or sixty years ago the Young Women's Christian Association began its labor of love in opening up small made-over

mansions furnished to accommodate about twenty-five or thirty girls. The committee work was entirely in the hands of the splendid women who desired to "do for" the poor girl and provide her with the cheapest possible room and board for as long as she might seem to need it. It became obvious, after a while, that we were undermining the spirit of independence and weakening the incentive to greater effort of the few, while gaining for ourselves an unenviable reputation among the many as a much-to-be-avoided "charity."

The combination building. When the Young Women's Christian Association became convinced a number of years ago that existing accommodation was inadequate it was led in many places to add a few bedrooms to its newly built "activities" building and thus we find in some cities thirty or forty, or in some cases more, bedrooms on the floors above a gymnasium, pool, club and classrooms. Experience proves the unwisdom and the inadequacy of that attempt to meet the need.

The cottage home. During the preliminary stages of the study of ways and means of construction and operation certain undeniable facts become obvious and the ideal fades into the limbo of the unpractical. At present building prices, for instance, we cannot afford a separate roof, separate heating plant, separate basement, for each group of fifteen or twenty residents; nor can we afford (or find if we could afford) the right kind of house-mother for each of many small groups.

The present ideal is undoubtedly a specially built project planned in such fashion that it can be operated on an economic basis and produce a 4 to 6 per cent return on the entire investment in land, construction, and equipment.

Location. Preferably it should be on a quiet settled residence street within fifteen or twenty minutes' walk of that part of the town where the majority of the residents are employed; on a well lighted, well paved street, so related to the points of the compass that what cool summer breezes there are circulate freely at night to the refreshment of the family.

Floor plan. The content of the building should include the following: an individual bedroom having a plastered closet and a complete set of furniture; plumbing grouped in convenient locations in the proportion of 5 beds to one bath, 6 beds to one toilet, 5 beds to one wash-basin; dormitories, when there is an imperative need for the very cheapest kind of temporary accommodation; a laundry for residents' use with possibly 24 washtubs, steam dryers, and 6 or 8 ironing boards; a trunk room large enough to contain 1 trunk for each bed; an infirmary for doubtful or contagious cases, pending removal or other temporary service; a kitchenette; a sewing room; a dining room to seat the full number of residents; social parlors adequate in all respects; emergency quarters; recreation hall; help's dining room, sitting room, and locker room.

The equipment should be simple and inexpensive as solid construction and durability warrant; suitable in all respects to the type of resident expected.

The American girl and woman in general can pay her way and wants to do so. A chain of such residences, club houses,—call them what one likes—should be built in every city and town recognizing a housing problem for women and girls. Present-day social ideals demand that those who work faithfully shall earn enough to cover the cost of these prime necessities of life: decent clothing, enough food, and suitable shelter. *Present-day standards demand that suitable shelter shall be available.* We no longer need to cry, "Votes for women!" but "Houses for Women!" and the job of providing them is, in most cities, too huge now for any one organization to attempt singlehanded. It is the community's job, through united effort.

A 1921 Suggestion. The Architectural and Economic Bureau of the National Young Women's Christian Association, (600 Lexington Avenue, New York City), has made studies looking toward the discovery of the cheapest possible method of floor planning and building for the girl who can pay only ten dollars, eleven dollars, and upwards a week for single room and two meals. At prices obtained in the spring of 1921 in New York State it appears possible to build:

A. A fireproof building on land 60' x 100' eight stories high, which, rented to 160 girls at \$11 a week for room and two meals, produces 4% net on a total investment of \$371,000, providing not more than \$20,000 goes into cost of land.

B. In suitable locations, a semi-fireproof building of brick and stone with cement or composition floors can be built on land 125' x 180', three stories and basement, which, housing 160 girls at \$10 a week for room and two meals, can be made to pay 4% on the investment of \$265,000, providing cost of land does not exceed \$10,000.

C. A semi-fireproof building, brick exterior, wood floors and joists, composition floors on wood, plaster walls on wood studs, metal or wood lath, can be built four stories high, on land 60' x 100'. This accommodates 70 girls at \$10.50 a week for room and two meals, can be made to pay 4% on the total investment of \$100,000, providing the land does not exceed \$2,500.

Each of the foregoing floor plans results from months of study in the effort to eliminate waste space, and to provide just enough and not too much social room, dining room, kitchen and dependencies, trunk room, storage, work-shop, residents' laundry, bath and lavatory accommodation.

THE INDUSTRIAL CAFETERIA

E. H. ANSELL

The New England Telephone Company

Every industrialist of to-day is striving to secure efficient employees. Now efficiency cannot exist without physical fitness. Is it not, then, the first duty of the employer to create this physical fitness? How shall he accomplish it? One of the prime factors in solving his problem is the industrial lunch room.

There are two fundamental reasons for furnishing lunches to employees:

1. The employees are benefited because, by securing health-producing foods at prices that entice, they are assisted in preserving their working capital, their health.
2. The industrialist is benefited because his employees are enabled to fulfil to the utmost their part of the wage contract.

I call such work mutuality work because the benefit is mutual. The ill effects of indigestion due to cold lunches, hurriedly consumed, cannot be computed in cost summaries with any degree of accuracy, nor can the benefits of hot lunches; but it has been proved that the cost of maintaining lunch rooms is more than made up by the increased efficiency of the employees that take advantage of them.

The factors that influence patronage are: outside restaurant opportunities, distance between work and the home, selling prices of foods, and their appetizing appearance and quality. In the New England Telephone Company's lunch rooms, the daily patronage in the Boston office is 81 per cent of the total force, while in the suburban offices, like Cambridge, Brookline, Somerville, the patronage is 71 per cent. A comparison of these percentages with the average patronage of other industrial lunch rooms where the plant is isolated from public restaurant service is interesting. In three industries in different cities near Boston, the average patronage was 25 per cent, 25 per cent, and 12 per cent. A brief study of this field would show how much your association and training in cafeteria management is needed.

I believe that the cafeteria patronage of the New England Company is due to the following factors: prices that entice, appetizing appearance of foods, quality of supplies, and variety of menus.

There are 75 different menus, but menus are identical each day in all units. Each menu is supplemented by cooking instructions, so that all foods may be uniformly prepared and all portions equal. Each menu is also provided with a chart of food values for the use of the patron in selecting a well balanced ration.

Sample Menu

	Fuel value calories	Cost cents
Chicken pie.....	195	17
Bread or roll.....	100	
Butter.....	85	
Glass of milk.....	210	3
Peach blanc mange.....	330	8
Total.....	920	28

You will notice that this sample menu provides for food combinations at a price for the combination. Formerly, the menu showed each food item separately; for example, roast beef was 15 cents, mashed potato 3 cents, bread 1 cent per slice, etc. In such straight cafeteria service, the employee is given an opportunity to secure an adequate ration, and also an opportunity to evade securing one; for example, observations showed that many young women selected mashed potato, bread, butter, and ice cream, or something similar which did not provide a working fuel. These observations showed that only about 18 per cent of the patrons were picking up a proper ration, and, as a means of correct-

ing this, the combinations were introduced with the same price for the combination that was formerly charged for the meat alone.

I believe that an ideal financial arrangement is to have the industrialist assume the expense of rent, light, heat, and equipment; the cafeteria to meet the costs of foods, plus the cost of the wages of the cafeteria employees. My company's lunch rooms are conducted upon this basis, and the costs of wages are met by adding $33\frac{1}{3}$ per cent to the cost of the foods; the expense that the company assumes amounts to about $8\frac{1}{2}$ cents per capita per week. Let me emphasize that $8\frac{1}{2}$ cents per capita per week. This expense is more than offset by the financial benefits that the company receives; for example, in offices where lunch rooms are provided, the absence among the forces is from $1\frac{1}{2}$ to 2 per cent less than in the offices not having lunch rooms, and the percentage of employees occupying our quiet rooms is much less in offices where lunches are served.

Labor organizations regard labor as a commodity and pay no attention to training workers to fit them for advancement. A manager or a supervisor must be prepared for her position before we put her to work, and we must look to some organization outside of labor to provide our executives.

I believe that the best results can be secured with trained women of more mature age, 35 or over, who have raised their families, and whose lives have become stabilized, but who must work.

Important assets for cafeteria managers or supervisory work are as follows: Natural executive ability. Experience in home management, large or small, that gives stability to reason and judgment. Thorough training in cooking in large amounts. Standardized recipes that give the number and size of portions to be secured. Training in the simplest methods with which to obtain per capita cost, and percentage cost of wages and overhead. An understanding of what it means to serve the public or private group. Tact and diplomacy in dealing with criticism and in directing subordinates.

Our equipment is the counter service equipment, and it is constructed in units capable of expansion, to meet the requirements of offices of different sizes at a minimum expense. The units are composed of metal and are of uniform height and width, all having liberty silver or monel metal tops, so that they constitute a continuous working counter that will wear and look well indefinitely.

COUNCIL MEETINGS

REPORT OF COUNCIL MEETING

June 27, 1921, 10.00 a.m.

Members present: Mary E. Sweeny, presiding; Mrs. Calvin, Dr. Langworthy, Mrs. Bryan, Misses Blood, Cooper, MacLeod, Matthews, Milam, Reese, Weigley, Winslow, Roof, Thomas, Gearing.

Meeting called to order by the chairman. Minutes of the last meeting were called for, but since they had already been printed, it was voted that the reading be omitted and that the minutes be approved as printed.

Finance Committee. Report submitted by Sarah MacLeod, chairman, as follows:

The trial balance of May 31, 1921 shows a deficit for the JOURNAL of \$1323.75 and a surplus for the Association of \$361.32.

The funds of the Association must be increased. The suggested budget for 1921 is entirely inadequate because the income of the Association is inadequate.

Three methods of increasing funds suggest themselves, namely: (1) Increasing membership. (2) Increasing dues. (3) Making the JOURNAL an organ of the Association. There are only 1168 members of the Association and there are about 6000 subscribers to the JOURNAL. The committee requests the Council to give its help by discussing possible ways of increasing funds.

The question of increasing membership, also membership fees, was discussed. Moved and seconded that the chair should appoint a committee to make contact with the various other committees, this committee to work with Miss MacLeod on the matter of finance and to make a report at the meeting. Carried. The chair then appointed Anna Richardson and Ruth Dickey to confer with Miss MacLeod. Report accepted.

Committee on Survey of Home Economics Courses. Report sent by the chairman, Ada M. Field, read by the secretary, as follows:

The committee planned to make as thorough a survey as possible of the work now being given in the home economics courses in institutions of college rank. The work was divided according to the regions, with approximately uniform plans for the whole. Some regions were delayed for various reasons in getting out questionnaires and information to the institutions in their territory, but those who were able to get plans out during the fall—the Pacific and the Southern Regions—report encouraging coöperation. A number of reports are now in. It is hoped that all regions will have the work completed by the middle of the present year, but it may be necessary to compile and publish separately the data for different regions.

The committee recognizes that a great deal of work is involved in preparing the reports from Institutions, but it feels that the response already made in two regions indicates that home economics teachers are feeling the need of a study of this kind, and that the results will be of value. We wish to extend sincere thanks to those who have helped, and to ask for further coöperation and further suggestions.

Report accepted and the committee instructed to continue its work.

Committee on Opportunities for Women in Home Economics. Report by Dr. Langworthy, chairman, as follows:

Although the general situation has not changed much during the past year, the whole field of opportunities for women trained in home economics is gradually broadening. The war brought home economics to the fore and proved that women with such training were ready for service when needed. The general groups continue to be: teaching; commercial work, which includes the many forms of advertising; technical and administrative work in institutions; editorial and journalistic; and social service and welfare. The development of voca-

tional education in home economics has greatly increased the number of supervising and teaching positions, and the same is true of extension work. The advance in the teaching field is strikingly illustrated by the fact that a home economics expert has been made full professor on the medical faculty of a university where her knowledge of dietetics and other subjects can make a valuable contribution.

Statistical surveys listing the various types of positions with their salaries made at intervals of a few years are a valuable basis from which to judge the growth of home economics as a profession. The results of such a survey should form a part of the report of your committee at the next annual meeting.

Report accepted.

A communication was read from the Woman's Foundation for Health regarding affiliation with that organization. The secretary was instructed to ascertain the financial obligation in connection with such affiliation and report at the next meeting of the Council.

A communication was read from Dr. Minna Denton, recommending that the committee on research should be composed of people primarily interested in research work, rather than the chairmen of sections, together with the chairman of research. Recommendation adopted.

A communication was read from the State Farm Bureau (Michigan) Wool Department, asking that the Association use its influence in favor of the virgin wool fabric legislation. Voted that this matter be referred to the committees on legislation and textiles.

A communication was read from the National Social Workers' Exchange asking that the American Home Economics Association affiliate and pay a minimum fee of \$10. Voted.

A communication was read from the League of Women Voters, asking the Association to aid in furthering the work on the reduction of armament. This matter was deferred for further action. Later referred to Resolutions Committee.

A communication was read from the American Women's Club of Paris, asking the Association to contribute \$5 annually for three years to aid in the upkeep of the club house in Paris. Voted to write the Club that the Association was endeavoring to increase membership and would probably be able to consider their request at the next meeting of the Council.

The question of affiliating with the National Child Health Council was discussed and settlement deferred until further information could be obtained. Voted to telegraph the secretary for the necessary information. Miss Winslow was designated to report at the next meeting of the Council.

The following nominations were made from the floor, for the Nominating Committee: Antoinette Roof, chairman; Ava Milam, Bess M. Rowe, Edith Thomas, Mary Matthews.

Voted that the Committee on Resolutions be appointed by the chair. Katherine Blunt, Ada Hunt, Treva Kauffman, Martha Van Rensselaer, and Edna Skinner were appointed.

Letters from Frances Stern and Edna White, at present in London, were read. Voted that the Association send to Frances Stern, Edith White, Caroline Hunt, Alice Ravenhill, Mrs. Ann Gilchrist Strong of New Zealand, Mrs. Alice Norton and Ola Powell letters of good wishes and appreciation. Meeting adjourned.

REPORT OF COUNCIL MEETING

June 29, 10.00 a.m.

Members present: Mary E. Sweeny, presiding; Dr. Langworthy, Mrs. Calvin, Mrs. Bryan, Misses Cooper, Matthews, Winslow, Snow, Blood, Richardson, Milam, Weigley, Denton, Thomas, MacLeod, Gearing.

Meeting called to order by the chairman. Minutes of the meeting of June 27 read and approved.

Voted that the regular order of business be dispensed with and the discussion of certain important matters be brought before the meeting at once.

Committee on Executive Secretary. Report of committee appointed to study the need and cost of an executive secretary, and to suggest means of providing funds for her maintenance, submitted by Louise Stanley, chairman, as follows:

1. The committee recommends that if we are to become a representative national association we must have a paid executive secretary to hold it together.

Duties of the secretary:

a. She should help organize local and regional groups and help in the maintenance and increase of membership.

b. She should help in the legislative work. The legislative chairman if she is to do effective work must have someone in or near Washington who can be called upon to handle the situation at crucial moments.

c. She should help direct publicity in coöperation with the Press and Publicity Committee.

d. She should help develop and maintain the professional status of our organization in relation to other organizations. She should maintain a friendly relationship with other public welfare organizations.

e. She should help in the development of research, by coördinating lines of research, and keeping in touch with possible sources of income for various types of research.

f. She should help in the development of international relationships, both when we are asked to furnish aid to foreign countries and when foreign visitors wish to get in touch with home economics work in this country. She should keep in touch with such visitors to see that they are so routed through the country that they get a typical picture of the work of the Association.

2. The cost of maintaining the Secretary: Budget of \$5000.

Secretary.....	\$3000
Stenographic help.....	1200
Office rent.....	600
Traveling expenses.....	1000
Total.....	\$5800

From this can be subtracted \$1100 which is contained in the present budget, leaving a total of \$4700 to be raised. The committee recommends that \$5000 be raised annually and that this be done on the basis of two years, making a total of \$10,000 to be raised.

3. The following method for raising this amount is suggested:

a. That we have contributing members from outside the association. That these contributing members be asked to give a minimum of \$100 each.

b. That we have, within the association, sustaining members. The sustaining members may pay from \$10 to \$50.

c. That we increase our \$2 memberships during the current year by 1000.

d. That various organizations, particularly the honorary organizations, contribute to this fund. It was hoped that this might be in addition to the above budget, since the amount suggested for traveling expenses did not seem to be sufficient.

This report was amended to make the minimum salary \$3600; stenographic help, \$1500; traveling expenses, \$1400. Subtracting the \$1100, this leaves \$6000 to be raised annually.

The following general plan for raising the amount was then presented.

20 contributing members at \$100.....	\$2,000
10 sustaining members at \$50.....	500
40 sustaining members at \$25.....	1,000
50 sustaining members at \$10.....	500
1000 new members at \$2.....	2,000
	<hr/>
	\$6,000

Report accepted as amended. Voted that the chair appoint a committee to canvass the situation and obtain sustaining and contributing members to underwrite the budget of the Executive Secretary until January 1, before recommendation is made to the Association regarding her employment. The chair appointed Mary Matthews, chairman, Mrs Robin, Agnes Harris, Louise Stanley, Ava Milam, Edith Thomas, Helen Louise Johnson.

Committee on means of raising money to cover the deficit shown by the treasurer's statement. Report submitted by Miss MacLeod. The following recommendations were made:

(1) Drive for membership.

(2) Combining the dues of the JOURNAL and the Association and raising the amount to \$6.

(3) Dropping the affiliation dues of 25 cents.

(4) Fixing a definite fiscal year from January 1 to December 31.

Report considered section by section. (1) accepted; (2), (3), (4) vetoed.

Committee on Naming of Sections. Report telegraphed by Agnes Fay Morgan, chairman, as follows:

Inquiry by committee on naming of sections representative members in all parts of country resulted in almost unanimous recommendation of following nomenclature and number:

(1) Nutrition, or Foods and Nutrition; (2) Textiles and Clothing; (3) Institution Economics; (4) Extension Education, or Extension Home Economics; (5) Home Economics Education, or Teaching of Home Economics.

It is recommended that the sections organize subdivisions; for example, as follows: Textiles and Clothing into applied art and textiles; Institution Economics into hospital dietetics and household engineering or household economics; Home Economics Education into elementary, secondary, college, teacher training. Opposition is expressed to use of term vocational. Detailed report by mail.

Amended to omit recommendation in regard to subdivisions and to name sections as follows: Food and Nutrition, Textiles and Clothing,¹ Institutional Economics, Home Economics Extension, Home Economics Education, Home and Child Welfare.² Accepted as amended.

A petition for the formation of a section was presented by a group of women in business who had held a round table meeting. Moved and seconded that the committee be requested to continue as a committee for a year, present a program at the next meeting, and petition again next year for the formation of a section. Carried. It was directed that the chairman of the Program Committee be notified to this effect.

Committee on Committees. Report submitted by Anna Richardson, chairman, as follows:

The committee was instructed to consider the standing and special committees with a view to keeping only such committees as were actively functioning and with the hope that duplication would be avoided. It was recommended that the four sections as now organized should be: Food and Nutrition, Textiles and Clothing,¹ Home Economics Extension, Institutional Economics, and in addition two sections be added: Home Economics Education and Home and Child Welfare.² This latter section should take over the work of the Social Work Committee and be broadened to include certain of the problems of thrift and home management. The committee recommended, as temporary chairmen, Miss Snow for the Home Economics Education Section, and Miss Gillett for the Home and Child Welfare Section.

Journal Board: One new member to be named, Mrs. Mary McGowan in place of Ruth Wheeler whose term expires at this time. Katherine Fisher was appointed in the winter to take the place of Emma Gunther. Other members of the Journal Board remain the same.

Legislative Committee: Louise Stanley, chairman; Jessie Harris, Jessie Whitacre, Emma Winslow, Gertrude Van Hoesen.

International Committee on Teaching Home Economics: Helen Atwater, chairman, Edna White, Nellie Goldthwaite, Mrs. Ann Gilchrist Strong, Elizabeth Kelly.

Finance Committee: Sarah MacLeod, chairman; S. Agnes Donham, Susie V. Powell, Ellen P. Dabney, Alba Bales, Mr. H. Gale Turpin.

Committee on Time and Place: Faith Lanman, chairman; Helen L. Johnson, Blanche Shaffer.

Program Committee for the summer meeting: Helen Davis, chairman; Florence Harrison, Grace Denny, Mrs. Jessamine Chapman Williams, Amy Kelly, Inez Bozart. The Program Committee for the winter meeting was not suggested, since the exact place of the meeting was not known to the committee. The secretary reported that it would probably be held in New Orleans, and Cleora Helbing was recommended as chairman of the committee. The president was asked to name the other members of the committee.

¹ Changed at business meeting to Textile.

² Changed at business meeting to Social Welfare Committee.

Ellen H. Richards Fund Trustees to take the place of the four whose terms expire January 1, 1922: Isabel Ely Lord, Emeline Whitcomb, Mary Gearing, Mary Vail.

Executive Committee: Florence Ward, Alice Blood, Ava Milam, Jenny Snow, Mildred Weigley.

Committee on Interrelations with Other Organizations: Emma Winslow, chairman; the editor of the JOURNAL, Anna Van Meter, Antoinette Roof, Grace MacLeod, Adelaide Baylor, Lydia Roberts.

Committee on Membership: Grace Frysinger, chairman; Ruth Dickey, Wylie B. McNeal, Agnes Craig, Bess Hefflin.

The following recommendations were made:

Committees on Educational Research and Research Information be merged into one committee known as the Research Committee with Dr. Mina Denton, chairman, and a member representing the interests of each of the sections, as follows: Grace Denny, Florence Nesbitt, Hildegard Kneeland, Nina B. Crigler, Agnes Fay Morgan, Anna E. Richardson.

Pen and Press Committee be changed to the Press and Publicity Committee with Harriet Mason, chairman; Lilian Tingle, Helen Louise Johnson, Agnes Craig, Gertrude Lane, Marie Sellers, Martha Van Rensselaer, Flora Orr, the editor of the JOURNAL.

Committee on State Supervision and Committee on Vocational Education to be taken over by the Home Economics Education Section.

Committee on Exhibits to be discontinued except as the sections feel that it is desirable to have special committees.

Committee on Regional Scheme was changed to Committee on Regional Organization. Mildred Weigley, chairman; Ava Milam, Agnes Ellen Harris, Gladys Branegan, Anna A. Kloss, Mary Matthews.

The Committees on Teaching, on Data Regarding Home Economics Courses, and on the Survey of Home Economics Courses to be taken over by the Home Economics Education Section, and the work continued as in their judgment seemed wise.

Committee on Thrift to be taken over by the Home and Child Welfare Section.

The Committee further recommended that the group of Business and Professional Women be given an opportunity to organize into a committee.

Eight associate editors were recommended, one to represent each section: Day Monroe and the Executive Secretary, News; Edith Barber and Mrs. Hazard, Social Welfare; Florence Ward, Extension; Katherine Blunt, Foods; Cora Winchell, Education; Ruth O'Brien, Textiles; Lucile French, Institution Economics; Alice Biester, Bibliography.

Report accepted.

Meeting adjourned.

REPORT OF COUNCIL MEETING

June 29, 5.00 p.m.

Members present: Mary E. Sweeny, presiding; Mrs. Calvin, Dr. Langworthy, Mrs. Bryan, Misses Weigley, Denton, Stanley, Thomas, Matthews, Birdseye for Peek, Blood, Blunt.

Meeting called to order by the chairman. Voted that the reading of the minutes of the previous meeting be omitted.

The International Congress on Eugenics requested that a delegate be sent to the second congress. Mrs. Bryan was delegated to represent the Association at this meeting.

The Business and Professional Women requested that a delegate be sent to their meeting in Cleveland in July. Amy Kelly was delegated to represent the Association at this meeting.

The secretary read a telegram stating that there are no affiliation dues to the Woman's Foundation for Health. Voted that we apply for affiliation.

Journal Board. Report submitted by Mrs. Bryan, editor, as follows:

The subscription campaign, as outlined September, 1920, was as follows:

1. An invitation to subscribe to be sent to a list of about 1500, including home economics teachers and supervisors, home demonstration leaders, and other home economics workers.
2. Invitations to subscribe to be sent to Association members who are not subscribers.
3. Heads of Home Economics Departments to be asked to inaugurate subscription campaign in their institutions.
4. State Home Economics Supervisors to work with teachers.
5. State Home Demonstration Leaders to work with home demonstration agents.
6. Letters to be sent to libraries.
7. Work through state associations as soon as the regional plan is operative.

All but number 7 have been carried out, but this work will be followed up and developed next fall.

The JOURNAL has been placed on exhibit wherever feasible and some advertising has been carried in other magazines.

The subscription status is as follows: regular subscribers 4886, student 929, total 5815; net increase during the year 795. The above figures do not include the 500 student subscriptions recently received in response to Miss Milam's letters. We wish to express our appreciation of Miss Milam's valuable assistance.

Report accepted.

Regional Committee report will appear in a later number of the JOURNAL. Constitution and by-laws were changed, as suggested, as follows:

CONSTITUTION

ARTICLE 2

SECTION 2. Changed to read: By furthering the recognition of subjects related to the home in the curricula of schools and colleges, in extension instruction, and in other state and national educational programs.

Line 6 insert "extension" after "social."

ARTICLE 4

SECTION 5. Changed to read: Councilors elected by State Home Economics Associations shall serve until the close of the third annual meeting after their Election.

If at any time there are less than twenty-five state Home Economics Associations, affiliated with the American Home Economics Association, with representative councilors, the number of councilors to make up the difference between the number of affiliated State Home Economics Associations and twenty-five shall be elected at the next annual meeting of the American Home Economics Association to serve for three years from date of election.

SECTION 6. Changed to read: The Council shall consist, etc.

(2) At least twenty-five councilors, elected by and representative of, affiliated State Home Economics Association, or in the event there are not twenty-five affiliated State Home Economics Associations the difference in number elected by the American Home Economics Association.

(3) Regional councilors elected by their regions to serve for three years.

(6) There shall at all times be at least five councilors at large elected by the American Home Economics Association at an annual meeting, and holding office for a term of five years

SECTION 7. Change to read: "and five councilors, two from its members and three regional councilors designated by the Council."

BY-LAWS

SECTION 1 *Paragraph 1.* Change to read:

The nominating committee for each annual meeting shall consist of a representative from each region of the Association, selected by the members of that region attending the annual meeting of the Association, and two persons who shall not be members of the Council, but appointed by the Council. In the event that there are no representatives of any one of the regions, the president of the Association shall appoint a substitute from those attending the annual meeting. This committee shall be selected the first day of the annual meeting, and shall have a temporary chairman appointed by the president of the Association to act until the committee meets and elects a chairman from its number.

ARTICLE 3

SECTION 2. (1) Omit "or other local."

Add. Each State Association shall send to the National Association a fee of \$1.00 for each local member. This will make each member of the State Association a member of the National Association. In addition the State Association may charge such an amount as is considered necessary to carry on the local work of the Association.

This shall not disqualify State Associations already affiliated under the plan in operation in 1920-21. They shall be held under the plan of 25 cents per person fee until they can affiliate under \$1.00 per person. No new associations shall be affiliated on the plan of 25 cents per person to the National Association but those already affiliated shall be held over until the end of fiscal year ending June 30, 1922.

Add Paragraph 3 as follows: Home economics organizations other than state organizations desiring to affiliate with the American Home Economics Association shall include in their Constitution the following statements: "The object of this association is the same as that of the American Home Economics Association as stated in their constitution, Article II. In addition, this association wishes to devote itself more specifically to the problems of Home Economics as they develop in its local field."

Add to Paragraph 4 as follows: Organizations other than Home Economics Associations desiring to affiliate with the American Home Economics Association shall pay an annual fee of \$5.00 to the treasurer of the American Home Economics Association. They shall be entitled to receive the proceedings of the association meeting or other material of the association which shall be of interest. They shall not be entitled to a representative upon the Council.

REPORT OF COUNCIL MEETING

June 29, 10.00 p.m.

Members present: Mary E. Sweeny, presiding; Misses Cooper, Gearing, Blood, Weigley, Richardson, Milam, Denton, Stanley, Blunt, Thomas, Dr. Langworthy, Mrs. Calvin, Mrs. Bryan.

Meeting called to order by the chairman.

General discussion of the per capita dues in the regional organization plan. Mildred Weigley, chairman of the Regional Organization Committee, again

presented the plan of the committee, recommending that the states in affiliation pay to the national association a sum of money equivalent to 25 cents per capita. Edith Thomas discussed the plan and as chairman of the committee to consider affiliation with the American Home Economics Association presented the following resolution from the Southern Association:

Resolved, That the Southern Home Economics Association is heartily in favor of adopting the general plan of regional organization with the following recommendations:

1. That a statement be made by the American Home Economics Association of the budget necessary to carry out the new program, and that an investigation be made of the amount of money that would be brought in from the states by the 25 cents per capita assessment; that this information be submitted to the state associations for their next meeting.
2. That an outline of the new program be given to the state organizations in order to acquaint them with the proposed activities of the American Home Economics Association.
3. That delegates shall be sent from the state organizations to the regional conferences and from the regional organization to the national conference, these delegates to report back to their respective organizations the proceedings of the meetings.
4. That the meetings of the American Home Economics Association be rotated in the respective regions and in as centrally located places as possible.
5. That the president of the Southern Home Economics Association shall also be regional director, that the presidents of the state associations, or their official representatives, comprise the nominating committee for the Southern Home Economics Association. Nominations shall also be allowed from the floor.

Moved by Mrs. Calvin, and seconded, to approve of two plans, allowing states a choice of one or the other: (1) That the states affiliate on the 25 cents per capita basis as outlined by the Regional Organization Committee; or (2) on a \$2 membership plan, provided the state association wished to affiliate on a 100 per cent membership basis.

Miss Richardson moved the amendment that the individual membership dues remain at \$2 but that a rate of \$1 per capita should be made to state associations affiliating with the national organization. Seconded. A request came from the floor for a budget of next year's expenses in order to determine what the Association fees should be. Motion tabled. A committee to work out a statement of expenditures was therefore appointed, as follows: Mildred Weigley, Anna Richardson, Louise Stanley, Agnes Ellen Harris, Edith Thomas, Ruth Dickey.

Meeting adjourned.

COUNCIL MEETING

June 30, 9.00 a.m.

Members present: Mary E. Sweeny, presiding; all members of the Council in attendance at the convention were present.

The bill from the Suffrage Association was brought before the meeting. Voted that this bill should be approved.

Voted that the expenses for stenographic services be covered by the Association.

A statement was made to the effect that members of the Association were asked to contribute a sum of \$45 to be paid for the additional services rendered the Association by the hotel management, but members of the Council felt that this was not adequate. Voted that the Association make this \$55 instead of \$45, and that the balance between the amount received from the individual subscriptions and the \$55 be paid from the Association treasury.

The president sent a call to the section meetings for members of state organizations, represented at the national association meeting, to discuss with the Council the per capita assessment from state associations. After discussion, the representatives of the states expressed approval of the \$1 membership plan. The committee appointed to study the budget, in reference to the amount of dues, recommended that state associations affiliating with the National Association pay \$1 per member, and that each member automatically become a member of the National Association. Recommendation approved. Sending of an explanatory letter authorized.

Miriam Birdseye presented the following resolution from the Textile Section:

Resolved, That the Council of the American Home Economics Association be requested to authorize the organization of a Textile Section of the Association on a membership basis, such membership to be conditional upon the payment of a membership fee. Active membership in the Textile Section shall be membership in the American Home Economics Association, or in a state or regional Home Economics Association duly affiliated with the National Association.

Resolution approved. A fee of \$1 as a condition for membership in the Textile Section was authorized.

Upon request of the Social Work Committee, through its chairman, Lucy Gillett, it was voted that the Child Welfare Section should not be formed at this time and that the Social Work Committee should continue under the name of Social Welfare Committee.

Voted that all chairmen of committees be requested to stay through the entire sessions of the national association meeting.

Voted that the fiscal year of the organization begin July 1 and end June 30, instead of January 1 to December 31.

Voted that the proceedings of the meeting be printed in a special number of the JOURNAL, this number, however, to be one of the regular numbers, and that this should take the place of the four quarterly bulletins. Voted that the constitution be printed in the JOURNAL number containing the proceedings, and that reprints be available to state associations at cost.

The JOURNAL presented a request that associate editors be appointed to assist the editor. Approved.

Lenna F. Cooper was reappointed secretary and H. Gale Turpin reappointed treasurer.

The time of the next annual meeting was considered. Mrs. Calvin moved that the meeting, which is to be held at Oregon Agricultural College, Corvallis, Oregon, begin its meetings on the morning of July 3, 1922. Seconded and, carried. Voted to continue the meeting for five days. Voted that the Council recommend to the Richards Memorial Fund Trustees that the income of the fund be devoted to the securing of eminent speakers for the Association at the annual meeting.

Voted that the Executive Committee be empowered to appoint the executive secretary. Carried.

Meeting adjourned.

BUSINESS MEETING

June 30, 3.00 p.m.

Meeting called to order by Miss Sweeney. Voted to dispense with the reading of the minutes of the last meeting, since they had already been printed.

Minutes of the Council meetings were read and accepted with the correction that the executive secretary shall be the associate editor of news, working with Day Monroe. Accepted as corrected.

The president explained that, since the fiscal year is from January to January, the treasurer's report was not read.

The JOURNAL Board report was submitted by Mrs. Bryan. (See Council meeting, page 461.) Report accepted.

Trustees of the Richards Memorial Fund. Mrs. Calvin read the report from Dr. Andrews, the secretary and treasurer. Voted that the report be referred back to the secretary of the Fund with a request for more details.

Finance Committee. Report submitted by Miss MacLeod. (See Council meeting, page 455.) Report accepted.

Committee on Legislation. Report submitted by Louise Stanley, chairman, as follows:

Since February the main effort of the legislative chairman has still been focused on the Fess bill. This bill was reintroduced on April 7, 1921, without change. This was in spite of the fact that we had asked that the two amendments reported at the last meeting be incorporated. These will be incorporated before the bill is reported out.

A total of ten news letters have been prepared, multigraphed, and sent out, approximately 200 each time. These have been sent to the state chairmen, to the state office of vocational education where the state chairman is not connected with the state office, and to other interested persons, and to newspapers. A number of the news letters have been sent to Washington to individuals and to papers. We have had editorials in support of the Fess bill in the *Delineator* and in the *Farm and Home*. Thanks for these are due to Miss Van Rensselaer and Miss Rowe. We have recently had a request from *Good Housekeeping* and expect to have an article featuring the Fess bill in the September number.

The Smoot bill has been reintroduced by Senator Smoot as Senate bill No. 450. We have written to Senator Smoot asking what he considers the chances of this bill during the special session, but have not yet heard. If the bill has no chance of passage at any special session, it may be wise to concentrate our effort on this bill during the regular session.

The Land Grant Colleges have introduced a new experiment station bill which makes permissive the use of experiment station funds for home economics purposes. If this bill is to become a law, and the Smoot bill is not, everything possible should be done to have the words "Home Economics" inserted in it.

The Sheppard-Towner bill has not yet been enacted into a law. At the request of the Woman's Legislative Committee, a letter has been sent to every member of the national Congress stating our support of this bill, with the reasons. Replies to this have been variously ambiguous and encouraging. It is impossible to tell whether anything is likely to happen to this bill during the present session.

The chairman received an invitation for a representative of the Association to attend the hearing on the French-Capper bill. Since we were not supporting this bill, it did not seem wise to send a representative.

In conclusion, while our work may have seemed discouraging, the chairman wishes to thank the state representatives of certain states for their cooperation. On the other hand, the lack of response from certain states has been discouraging. A question has been raised as to the method of handling the news letters. A letter was sent to each state chairman asking how she wished these to be handled; whether she could multigraph them and send them out, whether she could send them out if they were sent to her in quantity, or whether she would send us a mailing list. Up to date, only three responses have been received to forty-eight letters.

Report accepted.

Miss Stanley also presented a report from a sub-committee, Gertrude Van Hoesen, chairman, on Publicity for the Fess Home Economics Amendment, as follows:

The American Home Economics Association has issued to State Legislative Chairmen weekly news releases to be placed with them in their state newspapers. This is only a beginning of the work that should be carried on in the states.

Every organization endorsing the Fess Amendment should feel the responsibility of the educational work of informing the public of the significance of the proposed legislation through lectures, newspaper mention, interviews with leading citizens to be published in the newspapers; publicity in the official organs, and the distribution of the explanatory folders. Here are two instances of such cooperation: Mrs. John C. Ketcham, of the National Grange, has undertaken to place a notice in the official organ of the Grange. Mrs. Harry Sternberger, Executive Secretary of the Council of Jewish Women, will give publicity to certain releases and will distribute 500 folders.

Through Miss Stanley, Legislative Chairman, A. H. E. A., and through Miss Van Hoesen, Washington representative, we have submitted articles to women's magazines, the labor press, foreign language papers, the negro press, educational papers, and farm papers. Within the next few months all of these classes of publications will receive a second or a third notice. An endeavor should be made to place articles of national interest with the big syndicates.

Mention or editorials have appeared in the *Ladies Home Journal*, the *Delinicator*, the *Farmer's Wife*, and the *Journal of Home Economics*. The *Woman's Home Companion* and the *Pictorial Review* have promised cooperation. Mrs. Miller of the League of Women Voters, has given the bill mention in her letter to the *Woman Citizen* of July 18.

Folders have been issued in bulk to the League of Women Voters, General Federation of Women's Clubs, Congress of Mothers and Parent-teachers Association, and others. Letters and a few folders were sent to a list of Chautauqua bureaus and lecturers.

Distinguished endorsement is recommended. We should secure interviews with women of national distinction (Mrs. Harding or Miss Boardman, for instance). A syndicate will gladly take this material.

Report accepted.

Committee on Supervision. Report submitted by Edith Thomas, chairman. She said that the committee had undertaken a study of all phases of supervision and that there were three types: state, county, and city. Miss Thomas asked if the Association desired the full report. Voted that Miss Thomas give as much of the report as was profitable at that time. Miss Thomas asked that since the committee did not have sufficient information on which to base its judgment it be allowed to continue. Voted that the report be accepted and that the committee be continued.

Committee on Research Information. Report submitted by Dr. Minna Denton, chairman, as follows:

This committee desires to report collection of the following data:

1. A list of titles of 100 masters' theses and other research reports from the home economics field, 80 per cent of which are hitherto unreported so far as we know. Most of these titles represent work completed within the past 3 years. About 20 different institutions are represented in the list. This list may be secured on or after September 1, 1921, by writing to the chairman.

2. Twenty specific suggestions have been collected, presenting problems from the home economics field, concerning which research work is needed.

3. A research directory of government laboratories and offices located in Washington, D.C., has been prepared; it is in index form, and contains about 700 subject matter titles, representing 75 different offices or bureaus. A limited number of copies are now available for distribution; a larger number will be available probably by October, 1921.

The committee makes the following recommendations to its successors:

1. Publication of titles of completed research reports (whether the reports themselves be published or unpublished) is desirable. These lists should appear in the *JOURNAL OF HOME ECONOMICS* if possible.

2. Publication should be made, from time to time, of lists of research problems so definitely stated or outlined that laboratory or field workers in different parts of the country may be stimulated to work on them.

3. There should be stimulation of coöperative research, by arrangement for group conferences of laboratory or field workers who are already taking part, or who are definitely planning to take part in research concerning some particular topic or question. The organization of three such coöperative groups has already been begun within the Science Section. Arrangements should be made with the program committee, so that there will be provision for conferences between these coöperating research workers at the next annual meeting of the Association; as also, provision for the organization of new groups.

4. Better facilities are urgently needed for the publication of home economics research reports, either in full or in abstract. If of general interest, these reports should appear in the *JOURNAL OF HOME ECONOMICS* if possible; but provision should also be made for suitable means of dissemination of research findings which are of interest to research workers themselves but not appropriate for distribution to the general public.

Report accepted.

Committee on Vocational Education. The chairman was not present at the convention and the committee had held no meeting. The president reminded the committee of the ruling that if the chairman is not present the committee shall meet, elect a chairman from their number, and report.

Pen and Press Committee. Report submitted by Helen Atwater, chairman, as follows:

The members of the Pen and Press Committee have come together three times during the year: at the time of the Atlantic City meeting in February, at a special meeting called in New York in April, and at the annual meeting at Swampscott in June.

The two principal subjects discussed at these meetings and in the fairly active correspondence between the chairman and the other members have been general magazine and newspaper publicity for the Association and for home economics subject matter, and special publicity for the meetings of the Association.

At the April meeting, a list was drawn up of the more important of the special professional magazines, the organs of societies, work of which is akin to home economics, the women's magazines, the farm papers, and the general news and literary weeklies, and these were apportioned among the members of the committee to try to interest the editors in the Association and to secure space for subjects which concern it. Complete reports have not been made of the results of the canvass, but the *Delineator*, the *Pictorial Review*, and the *Woman's Home Companion* are arranging to use material; several of the farm papers have expressed their willingness to do so, and several weeklies have asked for material on special topics. The organs of associations such as the Girl Scouts, the Campfire Girls, and the Community Service have shown considerable interest. Miss Sellers is arranging for a series of six articles to be published in *The American Girl*, the magazine of the Girl Scouts.

Miss Milam, the only member of the 1919-20 committee present at the Colorado Springs meeting, secured excellent newspaper publicity for that meeting, and was assisted by a local committee appointed by Miss Allison. The Colorado Springs and Denver papers took considerable material. In addition 200-300 words were sent nightly to the *Portland Oregonian* and frequent messages to the Associated Press. Reports featuring one or two addresses were sent to some twenty magazines and weeklies. Miss Milam has agreed to take charge of the publicity in connection with the meeting at Corvallis next summer.

Preliminary notices of the Atlantic City meeting were sent to a similar list of periodicals, and an attempt was made to secure advance notices of the program. This effort was not very successful because the place and date of the meeting were not fixed long enough in advance to get into the monthlies, and the Program Committee could not give us the list of speakers in time even for the weeklies. At the invitation of the N. E. A. we used their publicity facilities at the time of the meeting, but we did not receive as much mention as we should have liked because our news was lost in the mass of material coming from the many meetings held at the same time.

Some of the same difficulties arose in connection with advance publicity for the present meeting. We were able to give out notices of the date and place early enough, but the program was not available in time for use in the monthlies, nor could we even get enough advance information to give informal description of its probable contents. The newspaper publicity in connection with the meeting itself has been arranged for by Miss Agnes Donham and Mrs. Elizabeth Macdonald of Boston and we feel that the Association is very greatly indebted to them for securing so much interest and space from several of the important Boston papers and the Associated Press.

In connection with both the Atlantic City and the Swampscott meetings, the chairman of the Program Committee has done everything in her power to give us early information but she can not go faster than those who work with her in building up the program. In behalf of next year's chairman as well as of this committee, may we urge upon the section and committee chairmen the importance of preparing the program at least three months in advance of the meeting. Without this we cannot hope to interest monthly periodicals in our meetings.

It was voted at Colorado Springs to request each person on a program to send in advance an abstract of his speech or paper, and such requests have been made before both of this year's meetings. Many of the speakers have been prompt in doing this and so have been of real aid to this committee. We must insist, however, that, in order to make successful reports, we have all abstracts at the date requested. Next time we intend to ask for very brief abstracts, not more than 200 words, in which the "high spots" will be brought out, and we shall ask the authors to prepare these as if they were to be used verbatim in a newspaper write-up.

Modest as has been the work of the committee during this year, it has taken considerable clerical assistance as well as the time and travelling expenses of the committee. The necessary copying of material for the newspapers at this meeting we are asking the council to pay for. In addition, practically every member has contributed some time from stenographers and copyists. We have been glad of this opportunity to help the Association, but we feel it should realize that the work of publicity cannot grow as we all wish it to grow unless some funds are provided to meet the cost of paper, postage, typewriting, mimeographing, etc. We consider \$125 a very modest estimate of what the Committee should feel free to spend for such purposes, and we shall be glad if the Association can see its way to authorizing us to use that amount.

Report accepted.

Ava Milam was appointed to take charge of the publicity for the Corvallis meeting.

Committee on Exhibits. No report. Miss Hunt, chairman, is abroad.

Social Work Committee. Report submitted by Lucy Gillett, chairman, as follows:

Those doing nutrition work with social agencies have felt the need of more specialized training for the problems they have to meet. These problems are quite different from those in teaching.

At a hurriedly called meeting of a few members of the Association at the Atlantic City meeting in February, there seemed to be felt a need for a more general discussion of the qualifications for the nutrition worker.

With this in mind a meeting was arranged for the Swampscott Conference to discuss the training of the nutrition worker. Flora Rose emphasized the need of special attention to methods. In the class room, attention may be compulsory; in social work attention must be gained by making the subject alive with actual results.

In the absence of Miss Sawyer, Dr. Murlin spoke of the need of a better understanding on the part of the nutrition worker, the frequency of abnormal conditions, of the medical aspects that must be considered, and the need of coöperation with the physician.

Margery Smith outlined clearly the many pitfalls for the worker who goes into social dietetics without an understanding of the many problems that are involved in the home as a social element.

The social work committee has been collecting, from those in the field, instances which show the need of special training for this work. They all come under the three topics outlined above—methods, social work, and a medical view point. The committee hopes that this report may appear in a later number of the JOURNAL.

Report accepted.

International Committee on Teaching of Home Economics. No report.
Committee on Thrift. No report.

Committee on Time and Place. The Chair advised that this committee had been discharged at Atlantic City, and that the evidence of their excellent service was before the Association.

Program Committee. Report presented informally by Alice Blood, chairman. It was suggested that the program committee be made up of a definite personnel representative of the various sections of the Association rather than the chairmen of sections; that a local committee should be formed and that it have one meeting, long before the program is arranged, to facilitate arrangements.

Dr. Langworthy moved that the Association give a rising vote of thanks to Dr. Blood and her committee. This was done.

Committee on Commercial Exhibits. No report.

Committee on Constantinople Fund. Discharged at Atlantic City, since the fund was raised, and Mrs. Norton now in Constantinople.

Committee on Textile Cooperation. Discharged at Atlantic City.

Committee on Data Regarding Home Economics Courses. (See Council meeting, page 455.) Report accepted.

Committee on Teaching. No report.

Committee on Promoting the JOURNAL. Report included in report of the JOURNAL Board.

Committee on the Naming of Sections. (See Council meeting, page 458.) Moved and seconded that the report of the committee as amended by the Council be accepted by the Association. Moved and seconded that the report be amended from "Textile and Clothing" to read "Textile Section." Carried. Report accepted as a whole.

Committee on Opportunities in Home Economics. Report presented informally by Dr. Langworthy, chairman. Opportunities for teaching seem to be numerous, judging from the number of requests that come to the Department of Agriculture; opportunities for the application of home economics in a commercial way have increased considerably and there is a noticeable development in the institutional management side, illustrated by the group of women in hotel work and by the very great financial success of some in cafeteria work.

It is recommended that the survey of the country by correspondence be repeated about once in three to five years, when any differences would be easy to recognize. Report accepted.

Committee on Standards for the recognition of home economics courses by colleges and universities, to develop standards for home economics institutions, requested by the A. C. A. Report submitted by Helen Atwater, chairman, as follows:

Immediately after this committee was appointed, we began correspondence with the officers of the A. C. A. and its committee on admissions. We found that the A. C. A. was itself very dissatisfied with the inconsistent position into which it had drifted, and that it intended at the approaching biennial meeting in Washington to go over the whole question of recognition of institutions. It welcomed the coöperation of the American Home Economics Association in settling the question of recognition of institutions giving technical courses in home economics, and, judging by the opinion of the chairman of its committee, had a more liberal point of view than is sometimes supposed. We were asked to wait until the biennial meeting before deciding on the points on which the coöperation should be planned. Owing to a printers' strike, neither the committee reports from A. C. A. biennial nor its revised constitution are yet ready for distribution and consequently your committee has made little progress in that direction.

In the meanwhile we have learned that the American Council for Education at its May meeting started an effort to formulate "common statements of standards of higher educational institutions of the whole country," and hopes that such a common statement can be adopted within two years. The success of this effort seems assured, and in view of it, it would seem unwise for the American Home Economics Association to attempt independently to set up any standards. Your committee, however, recommends that our Association investigate the present standards of the more important accrediting agencies as they apply to home economics courses, and make representations to these agencies and to the American Council for Education regarding what seem to us just standards for home economics work, and thus endeavor to secure more satisfactory and consistent rulings on the recognition of such work.

Report accepted.

Committee to Consider the Executive Secretary. (See Council meeting, page 457.) Moved and seconded that report be accepted. An amendment to increase the budget from \$6000 to \$10,000 was offered. An amendment to the amendment that the budget be raised from \$6000 to \$8000 was proposed. Amendment to the amendment lost. The amendment to raise the budget from \$6000 to \$10,000 lost. Report accepted.

Pledge Fund Committee. Report submitted by Mary L. Matthews, chairman, as follows:

The committee appointed to raise funds, by securing pledges from those in attendance at the meeting, presented the plan at the evening session on Wednesday and a total sum in pledges of \$2630 was raised. These pledges included: 7 contributing members, 4 sustaining members at \$50, 17 sustaining members at \$25, 6 sustaining members at \$20, 2 sustaining members at \$15, 50 sustaining members at \$10, 66 contributions of \$5 each and 10 others less than \$5.

The need for an Executive Secretary has been felt by the Association for some time, since, with a woman available who could give all her time to organization work and other duties which develop with such an office, it would be possible to put the Association on a more business-like basis.

The Association needs members, not only those who will pay their dues but those who will actively assist in making the organization a bigger and better working group.

Will you not send in (1) your pledge or contribution to the Executive Secretary Fund and (2) new memberships secured in your locality?

Report accepted.

Nominating Committee. Report submitted by Antoinnette Roof, chairman, as follows:

List of candidates for officers and councilors: President, Mary E. Sweeny, Michigan Agricultural College; Vice President, Dr. Katharine Blunt, University of Chicago. Council members: Jessie Whitacre, Utah Agricultural College; C. F. Langworthy, Washington, D. C.; Neale S. Knowles, Iowa State College; Faith R. Lanman, Ohio State University; Margaret Sawyer, American Red Cross, Washington.

Moved by Ruth Dickey that the secretary be instructed to cast a unanimous ballot for the officers named by the Nominating Committee. Carried.

Committee on Resolutions. Report submitted by Dr. Katharine Blunt, chairman, and considered section by section, as follows:

1. *Resolved*, That the American Home Economics Association request the North Central Association of Science and Mathematics Teachers to take action requiring of all new home economics teachers in their high schools the same standards of education as they require of other high school teachers. Adopted.

2. *WHEREAS*, Reports from the states indicate a definite minimum need of approximately three hundred home economics extension workers during the year 1922, with a probably increased demand during the coming months, and a general outlook for even greater increase within the next five years; therefore be it

Resolved, That the American Home Economics Association bring to the attention of all universities and colleges (land grant and otherwise) the status and needs of home economics extension work as presented in the report of the Committee on Needs and Maintaining Home Economics Extension work. Adopted.

3. *Resolved*, That we urge upon Congress, and individually upon our respective representatives, the favorable consideration of such legislation as will assure the continued growth, operation, and control of a permanent chemical dye industry in the United States of America. And be it further resolved that copies of this resolution be immediately sent to the Ways and Means Committee of the House of Representatives and the Finance Committee of the United States Senate. Adopted.

4. *WHEREAS*, Research in home economics is important for the further development of home economics work, and whereas there is need of financial aid for research in the various institutions of the country; be it

Resolved, That we express to the Honorable Reed Smoot our appreciation of the introduction of the Senate Bill 450 which provides funds for the development of home economics research, and further urge the Senate Committee on Agriculture to consider this bill favorably and report it out as soon as possible. We further pledge our full support to this bill. Adopted.

5. *WHEREAS*, The American Home Economics Association is interested in the further development of home economics education in the public schools of the United States, and whereas, we realize the value of the stimulus of federal aid in the extension of the work and the development of standards in the States; therefore be it

Resolved, That the American Home Economics Association reaffirm its endorsement of the Fess Home Economics bill and urge that the members of the Education Committee report this bill favorably and that the republican steering committee be asked to give it a place on the calendar of the present session, and that copy of this resolution be sent to all State Home Economics Associations and to members of the Education Committee of the House. Adopted.

6. *WHEREAS*, We recognize the necessity for measures for the protection of child and maternal health, and whereas, we feel that such a program is closely related to the development of any sound program of home economics; be it

Resolved, That we reaffirm our endorsement of the Sheppard-Towner bill, and urge that action be taken during the present session of Congress. Adopted.

7. *WHEREAS*, The National Research Council has established a National Institution of Nutrition with a research program including investigation of the Food Requirements of

Children of Different Ages; Selection of Food for Children; Nutrition in Relation to Industrial Health and Efficiency; Distribution of Vitamines and Their Behavior under Domestic and Commerical Treatments of Foods; and whereas, this research program is of vital importance to all home economics workers; therefore be it

Resolved, That the American Home Economics Association heartily endorse this National Institute of Nutrition and offer it full support. Adopted.

8. WHEREAS, There are in the United States 4,000,000 children between four and six years of age who are losing two years of schooling because kindergartens have not yet been provided for them, and whereas, our children are entitled to the best possible educational equipment to prepare them for the heavy burdens and responsibilities which will be theirs in the near future, and whereas, criminologists estimate that \$3,500,000 a day is being spent upon our criminal classes, and whereas, the kindergarten has demonstrated its value as a potent means of reducing crime as well as an effective agency for promoting Americanization, and increasing general intelligence and efficiency; therefore be it

Resolved, That the American Home Economics Association exert every possible effort to promote the extension of kindergarten education during the coming year. Adopted.

9. WHEREAS, The American Home Economics Association is strongly interested in development and maintenance of world peace, and whereas, international agreement on disarmament is an essential step toward such peace; therefore be it

Resolved, That the American Home Economics Association respectfully request the President of the United States to call a conference with Great Britain and Japan upon the subject of reducing naval armaments. Tabled.

10. WHEREAS, Much of the success of the fourteenth Annual Meeting of the American Home Economics Association is due to the generous hospitality and cordial coöperation of the management of the New Ocean House; be it

Resolved, That the secretary be requested to send to Mr. C. E. Kennedy and his staff a letter of appreciation of the many courtesies extended, which have contributed to the comfort and enjoyment of the members, and have facilitated the success of the meetings. Adopted.

11. WHEREAS, The committees in charge of arrangement for the Fourteenth Annual meeting of the American Home Economics Association have contributed largely to the success of the conference; be it

Resolved, That the gratitude of the Association be extended to Dr. Alice Blood, Chairman of the Program Committee for her efforts which have resulted in a program which has been enjoyable and beneficial; Ula Dow, in charge of arrangement for time and place of the meeting, for the selection of headquarters with such satisfactory living conditions and attractive environment; Jennie Kendrick, chairman, together with all members of the Hospitality Committee who so ably managed the professional trips and supplied helpful local information to the visiting guests; Agnes Donham, chairman of Local Publicity, and Mrs. Elizabeth MacDonald and other members of the committee whose indefatigable services have resulted in effective publicity; Mrs. Melville Eastham for arranging the picnic and for the housing of those not at the hotel; to Mr. Day of the Lynn Chamber of Commerce for generous help in a secretarial emergency. Adopted.

Section Reports

Textile Section. Report submitted by Miriam Birdseye for Miss Peek, chairman, as follows:

The Textile Section is to include textiles, clothing, design, household furnishing; research, extension, commercial, and industrial work in these subjects. It has set as a goal for membership 500 members. It has 24 paid memberships and has elected honorary members. It has adopted the policy of the strong national membership, with the idea of encouraging the

establishment of regional, state, and local working units of people who will adopt a local program of work in sympathy with the national program of work. The officers elected are: Agnes Craig, Springfield, Mass., chairman; Grace Denny, vice-chairman; Miss Grizzell, secretary; Miss Dobson, treasurer.

Report accepted.

Science Section. Report submitted by Winifred Moses, as follows:

Meeting was called to order by the Chairman, Dr. Minna Denton at 9.30 o'clock, June 30, 1921. The Secretary was not present; minutes of the last meeting were not read. The first three papers, namely: Development of Research Problems in the Field of Experimental Cookery—Various Methods of Approach; An Account of the Specific Research Problems; The Organization and Possibilities of Coöperative Research in Colleges, were followed by a brief discussion. The concensus of opinion seemed to be that a more definite effort should be made to collect and make available for distribution among research workers, the mass of material that has already been written on home economics subjects.

The next two papers, The Basal Metabolism of Women and Underweight Children, and Emulsification in Mayonnaise, were followed by discussion which led to the formation of a committee, with Professor Mark as chairman, to pursue further investigational work on the problem of emulsification in mayonnaise, the problem to be assigned by Professor Mark. The following members of the section volunteered to work on these problems: Mabel Wellman, Mildred Weigley, Evelyn Halliday, Mabel McGinnis, Day Monroe, Miss Eickleberger, Winifred Moses.

A short business meeting followed. Miss Whittaker, Chairman of the Nominating Committee, moved that Katherine Jensen of the University of Idaho be appointed Chairman and Mary Ann Garber of Montana, Secretary, of the Section of Foods and Nutrition for the year 1921–22. Seconded and carried. Dr. Katharine Blunt read the report of the committee on Research Coöperation. The work done by this committee included the collection of material, sending out of questionnaires, and follow up letters. Reports were obtained from the Pacific, the Central, the West Central, and the Canadian Sections. No reports from the Southern and Eastern Sections. Voted that this committee be continued as a sub-committee in the Section of Foods and Nutrition.

The business meeting was followed by a discussion of the factors that may affect the basal metabolism in underweight children of school age, and the remainder of the program as planned.

Report accepted.

Institutional Section. Report presented informally by Miss Cooper. The program of the section was presented as arranged, Mary Lindsley presiding. The officers elected are: Effie Raitt, University of Washington, Seattle, chairman; Miss Failyer of the Government Hotels, Washington, D. C., secretary. Report accepted.

Extension Section. Report submitted by Myrtle Cole, as follows:

The meeting was called to order by Madge Reese, acting as chairman in place of Ola Powell. Opening address by the Chairman. Minutes of the last meeting were read and approved. The chairman then announced that in order to save time the business meeting and program would be combined. Program presented as arranged, except that in the absence of Miss Neale, Mr. O. B. Martin told of the growth of home demonstration work, Margaret Whitemore took up the discussion of "Plans for the Future" and told of varying conditions in Kentucky, and Agnes Harris spoke briefly of the spirit of coöperation which marks the work of home demonstration agents.

Committee on Training and Maintenance of Home Demonstration Agents Report presented by Grace Frysinger, Office of Extension North and West, chairman. Copies were given to those present and are available for others interested in the material contained. Mrs. McKimmon moved the acceptance of the report. Seconded. Miss Sayles advocated four years special training instead of two years, as recommended by the committee. Mrs. McKimmon, urging recognition of the contributions made by exceptional people without the required technical training, advocated the two year requirement. Miss Harris moved an amendment for four years technical training. Seconded and carried. Report of the committee as amended accepted.

Nominating Committee, Amy Kelly, chairman, presented the following nominations:

For Chairman of Extension Education Section, Mrs. Rena Maycock, State Home Demonstration Leader, Logan, Utah; for Secretary, Frances Brown, State Home Demonstration Agent of Oklahoma. Report unanimously approved.

Committee on Training and Maintenance of Home Demonstration Agents continued with Miss Frysinger as Chairman. This committee instructed to act as Committee on Resolutions. Meeting adjourned.

Report accepted.

Dr. Langworthy moved that the secretary be instructed to send a telegram to Mrs. Dewey expressing the love and interest of this Association. Seconded and carried.

Meeting adjourned.

MEETING OF THE EXECUTIVE COMMITTEE

June 30, 8 p.m.

Members present: Mary Sweeny, presiding; Dr. C. F. Langworthy, Dr. Katharine Blunt, Dr. Alice Blood, Mrs. Bryan, Misses Weigley, Milam Cooper.

Meeting was called to order by the chairman, to discuss the selection of an executive secretary. Moved by Ava Milam, and seconded, that Helen Atwater of the Office of the Home Economics, Washington, D. C., be invited to become the executive secretary. Carried. Secretary instructed to write Miss Atwater. Suggested that the matter of first importance, and one of the duties of the new executive secretary, should be the establishing of the Regional Organization and that in order to accomplish this she should be largely at the disposal of the Regional Committee, for the first part of the year at least. The time of assuming the duties of the office of executive secretary was left to the Executive Committee, to be determined later. The location of the Association office was left to the Executive Committee.

Ruth O'Brien was appointed associate editor on Textiles. Due consideration was given to a request from the Textile Section that at the next program one entire general meeting be devoted to a textile program. The Executive Committee, however, felt that, in the experience of former meetings, this would be unwise, but voted to devote one general meeting to textiles with the exception of one number, which is to be of general interest. Voted that the Textile Section be allowed to have the two sectional meetings as per their request.

Secretary was instructed to write Mr. J. W. Crabtree, secretary of the N. E. A., regarding the possibility of holding a meeting of the American Home Economics Association at the time of the winter meeting of the Division of Superintendence.

Meeting adjourned.

CONSTITUTION OF THE AMERICAN HOME ECONOMICS ASSOCIATION*Revised June 30, 1921***ARTICLE I****NAME**

The name of this organization shall be the American Home Economics Association.

ARTICLE II**OBJECT**

1. The object of this Association shall be to improve the conditions of living in the home, the institutional household, and the community.

2. Specifically the Association shall aim to advance its purpose: by the study of problems connected with the household; by furthering the recognition of subjects related to the home in the curricula of schools and colleges, and in extension instruction and in other state and national educational programs; by securing the establishment and standardization of professional instruction for teachers, and for home, institutional, social, extension, and municipal workers; by encouraging and aiding investigations and research in universities and through State and Federal governments; by publications, professional and popular, and by meetings local and national, that knowledge may be increased, and especially that public opinion may be guided and advancement made secure by legislative enactment.

ARTICLE III**MEMBERSHIP**

All who are interested in home problems are eligible to membership in the Association.

ARTICLE IV**OFFICERS**

1. The officers shall consist of a president, three vice-presidents, a secretary, a treasurer, a council, and an executive committee.

2. The president shall be elected by the members of the Association present at the annual meeting, and shall serve until the close of the annual meeting at which a successor is elected. Only a member of the Council or one who has served on the Council shall be eligible for this office.

3. One vice-president to serve for three years shall be elected by the Association at each annual meeting, and shall serve until the close of the annual meeting at which a successor is elected.

4. A secretary and a treasurer shall be appointed by the Council at the time of the annual meeting, and shall serve until the close of the annual meeting at which successors are appointed. The business editor of the Journal shall act as office secretary and shall be ex-officio member of the Council.

5. Councilors elected by State Home Economics Associations shall serve until the close of the third annual meeting after their election.

If at any time there are less than twenty-five State Home Economics Associations affiliated with the American Home Economics Association with representative councilors, the number of councilors to make up the difference between the number of affiliated State Home Economics Associations and twenty five shall be elected at the next annual meeting of the American Home Economics Association to serve for three years from date of election.

6. The Council shall consist of the following classes of members: (1) the president, the three vice presidents, the secretary, the office secretary and the treasurer ex-officio; (2) at least twenty five councilors, elected by and representative of affiliated State Home Economics Associations, or in the event there are not twenty-five affiliated State Home Economics Association; the difference in number elected by the American Home Economics Association; (3) regional councilors elected by their regions to serve for three years; (4) the chairman of each section of the Association; and (5) the editor of the Journal of the Association; (6) There shall at all times be at least five councilors at large elected by the American Home Economics Association at an annual meeting and holding office for a term of five years.

7. The executive committee shall consist of the president, the three vice presidents, the secretary, the treasurer, the editor of the Journal and the office secretary, ex-officio, and five councilors, two from its members and three regional councilors designated by the Council; and the members shall serve until the close of the annual meeting following their selection.

ARTICLE V

MEETINGS

There shall be an annual meeting of the Association at such time and place as the Council shall determine, but such meeting of the Association shall not be called so as to terminate the tenure of any office filled under Article IV oftener than twice in any calendar year, or three times in any two calendar years, or less often than once in any nineteen months and twice in any thirty-one months.

ARTICLE VI

SECTIONS OF THE AMERICAN HOME ECONOMICS ASSOCIATION

1. Sections may be organized on the approval of the Council. Each section shall have its officers, consisting of a chairman, a secretary, a treasurer, and such other officers and committees as the section shall from time to time authorize. Each section shall have control of any funds that it may raise independent of membership dues in the Association, but these funds shall be deposited in the Association treasury and drawn upon by the section. An annual report of the work of the section, which shall include a statement of receipts and expenditures, shall be made to the Association.

2. Sections shall be represented on the Council of the American Home Economics Association by their chairmen.

3. The Council shall provide opportunity on the program of the annual meeting for section meetings, shall print in its publications reports of the proceedings of sections, and shall provide, from the funds of the Association, such appropriations towards the work of the sections, as the By-laws may require, and the funds may permit.

ARTICLE VII

JOURNAL

The Association shall issue a professional journal of which the title, the copyrights, and the good will shall be vested in the Association.

ARTICLE VIII

AMENDMENTS

This constitution may be amended by a vote of two-thirds of the members present at any annual meeting, provided that notice of the proposed amendment be given in due form at the preceding annual meeting or by mail to all members one month previous to the annual meeting at which it is to be voted on.

BY-LAWS

ARTICLE I

ELECTIONS

1. The nominating committee for each annual meeting shall consist of a representative from each region of the Association, selected by the members of that region attending the annual meeting of the Association, and two persons who shall not be members of the Council, but appointed by the Council. In the event that there are no representatives of anyone of the regions the president of the Association shall appoint a substitute from those attending the annual meeting. This committee shall be selected the first day of the annual meeting, and shall have a temporary chairman, appointed by the president of the Association, to act until the committee meets and elects a chairman from its number.

Such committee shall present at least one nomination for each elected office publicly to the Association at least twenty-four hours before the election. Ballots shall be provided, with one blank space for each office, and any name written in this space on a ballot cast shall be counted as a vote.

2. Elections shall be by majority of votes cast.

ARTICLE II

DUTIES OF OFFICERS

SEC. I. The president, the vice-presidents, the secretary, and the treasurer, shall have the duties usually pertaining to their offices. The president shall be chairman of the Council and shall appoint committees as directed by the Council or the Association.

Sec. II. (1) The treasurer shall submit annual reports of receipts and expenditures, with vouchers, but money shall be paid only on the order of the chairman of the finance committee

(2) The secretary shall be responsible for the current records of the Association, and shall on approval of the executive committee carry out plans for increasing the membership, and strengthening the work of the Association.

(3) The office secretary's duty shall be to keep all records and attend to the business concerning them, to act as guardian of the Association records, and to assist the secretary in any other way designated by the latter.

Sec. III. (1) The Council shall hold such meetings as the president may call, shall meet one day before the annual meeting and shall continue in session as necessary thereafter.

(2) It shall manage the business of the Association and shall administer the property of the Association. It shall elect the secretary and treasurer of the Association and shall appoint committees. It shall fill such vacancies in office as may occur between annual meetings.

(3) It shall elect from its membership the five members who, with the president, vice-presidents, secretary, office secretary, and treasurer form the executive committee.

(4) It may fill for the year any vacancies which may occur in its membership.

(5) It shall transact business by correspondence between meetings, and the secretary shall send minutes of all meetings to all members.

(6) Ten members shall constitute a quorum.

Sec. IV. (1) The executive committee shall perform such duties as shall be delegated to it by the Council.

(2) A meeting of this committee may be called at any time by the president of the Association and shall be called upon the request of any three members of the committee.

(3) Four members shall constitute a quorum.

ARTICLE III

MEMBERSHIP

SEC. I. Anyone may become a member upon payment of the necessary dues. Members shall be of four classes:

(1) Active—who shall pay dues of two dollars, shall receive all bulletins, and shall have voting privileges;

(2) Life—who have made payment of fifty dollars;

(3) Patron—who have contributed one thousand dollars;

(4) Honorary—whom the Association has honored for exceptional service in any lines of work for which the Association stands.

SEC. II. *Affiliated Societies.*

(1) State Home Economics organizations affiliating with the American Home Economics Association shall include in their constitution the following statements: "The object of this organization is the same as that of the American Home Economics Association, as stated in its constitution Article II. In addition, this association wishes to devote itself more specifically to the problems of Home Economics as they develop in its local field." Such affiliated societies must have within their own membership at least ten members of the American Home Economics Association. Each such association is entitled to a representative on the Council, chosen by the association, from members of the American Home Economics Association.

Each State Association shall send to the National Association a fee of \$1 for each local member. This will make each member of the State Association a member of the National Association. In addition the State Association may charge such an amount as is considered necessary to carry on the local work of the Association.

This shall not disqualify State Associations already affiliated under the plan in operation in 1920-21. They shall be held under plan of 25 cents per person fee until they can affiliate under \$1 per person. No new associations shall be affiliated on the plan of 25 cents per person to National Association but those already affiliated shall be held over until end of fiscal year ending June 30, 1922.

(2) Home Economics organizations other than State Organizations desiring to affiliate with the American Home Economics Association shall include in their Constitution the following statements: "The object of this association is the same as that of the American Home Economics Association as stated in their Constitution, Article II. In addition, this association wishes to devote itself more specifically to the problems of Home Economics as they develop in its local field."

(3) Organizations other than Home Economics Associations desiring to affiliate with the American Home Economics Association shall pay an annual fee of \$5 to the treasurer of the American Home Economics Association. They shall be entitled to receive the proceedings of the association meeting or other material of the association which shall be of interest. They shall not be entitled to a representative upon the Council.

ARTICLE IV

I. The Association shall be organized by regions comprising groups of states. The states shall be divided into the following regions: (1) Eastern; (2) Southern; (3) Central; (4) West Central; (5) Pacific; (6) Canadian.

The grouping of states within these regions and any changes in these groupings shall be determined by the Council.

The states grouped within the regions shall be as follows until such time as it will seem advisable for purposes of more effective work to alter the grouping of these states:

1. Eastern: Six New England states and New York, New Jersey, Pennsylvania, Delaware.
2. Southern: Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Arkansas, Tennessee, Louisiana, Texas, Maryland, District of Columbia.
3. Central: West Virginia, Ohio, Illinois, Indiana, Michigan, Wisconsin, Minnesota, Missouri, Iowa, Kentucky.
4. West Central: Oklahoma, Kansas, Nebraska, North Dakota, South Dakota, Montana, Wyoming, Colorado, New Mexico.
5. Pacific: Arizona, Utah, Nevada, Idaho, Oregon, Washington, California.
6. Canadian.

II. Each region shall have an officer known as "regional councilor," to be elected by the state presidents when three-fourths of the states in regions are organized. Before that time regional councilors are to be appointed by the Council of the American Home Economics Association.

The duties of the regional councilor shall be to develop when possible state organizations within the above regions; and to assume responsibility for building up and furthering the work of the American Home Economics Association in the aforesaid regions.

ARTICLE V

COMMITTEES

1. A finance committee, an editorial board, and other necessary standing committees shall be appointed by the Council and each standing committee shall perform any work in its field that may be assigned to it by the Council or executive committee. Each standing committee shall report at the annual meeting, or from time to time, as seems advisable. At each annual meeting the Council shall review all committees, and shall discharge, reappoint, or change them.

2. The finance committee shall present to the executive committee by Dec. 1st of each year, a budget for the next fiscal year (calendar) and on approval of the executive committee shall authorize the treasurer to make payment under the budget. It shall receive duplicates of all treasurer's reports and be ready at any time to assist the treasurer or the executive committee. Duplicates of all minutes shall be furnished the treasurer, who shall be ex-officio a member of the committee.

3. The editorial board shall be responsible for the conduct of the Journal, shall present a budget for the Journal to the executive committee after approval by the finance committee, shall be responsible for carrying out the budget as approved, shall recommend appointment or reappointment of editor for each fiscal year, at least three months in advance of its beginning, and shall have authority to engage all other members of the JOURNAL staff. It shall report annually to both the executive committee and the Association.

ARTICLE VI

SECTIONS

1. As a means of carrying out Article VI of the constitution, the Association shall publish in its journal, for the sections, such reports, including papers or discussions, of section meetings as the executive committee of such sections shall request; provided no section shall be granted, except by vote of the editorial board, space in the journal out of proportion to the importance of its work and the size of its membership.

2. When a section meeting is held independently of the meetings of the Association, the treasurer of the section may collect, for the treasurer of the Association, the annual dues and contributions of members attending the meetings of such section and such collections shall be reported to the treasurer of the Association and transmitted to him within one week from the close of such section meetings.

3. Sections shall confine their voting membership to members of the Association, but executive committees of sections may provide special assessments and registration fees as requirements for enrollment and attendance at section meetings. The Association and sections shall cooperate financially for mutual advantage, each so far as possible assisting the other in furthering the interests of both.

ARTICLE VII

AMENDMENTS

These by-laws may be amended by a vote of two-thirds of the members present at any meeting, provided that notice of the proposed amendment be given in due form at least one month in advance.

ARTICLE VIII

Business shall be conducted according to Roberts' *Rules of Order*.

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INFORMAL TESTS IN TEACHING TEXTILES AND CLOTHING

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It is now generally recognized that standardized tests have brought about great improvement in many subjects of the curriculum. A limited number of such tests have been constructed in home economics, but, thus far, none of these have been standardized. The subjects that have clearly defined their aims or purposes—arithmetic, reading, spelling, and writing, have developed standardized tests which may be used throughout the country. Home economics, in common with geography, history, civics, and science, is still vague in its purposes, and really has no well defined objectives. The grade in which the work is begun, the subject matter taught, the method of teaching, and the standards of attainment have varied with the locality, the preparation of the instructor, and the purpose for teaching. It is easily seen, therefore, that to give standardized tests to large groups of students, in the various school systems, requires a degree of organization that does not at present exist in the home economics field.

We are quite in agreement with the teachers of home economics who feel that they do not want to standardize their work, if by standardization one means ignoring the needs of the individual student, or teaching material with no regard for local interests. We believe, however, that in all communities and in all situations there are certain fundamental facts, certain important principles, certain abilities that should be developed, certain bodies of knowledge that must be learned, which are common to all textile and clothing teaching. These, we feel, should be stated in no uncertain terms before attempting to formulate the daily recitation, the weekly or monthly test, or the course of study.

After we have clearly defined the objectives for teaching textiles and clothing, it then becomes necessary to ascertain to what degree the pupils have mastered this information. Since at present we have no standardized tests in the home economics field, and since some time must elapse before any of the tests now being developed become standardized, we suggest a plan already in use in some of the other subjects of the curriculum, i. e., the use of informal tests. The reasons that have been given for the use of informal tests are: they may be used for diagnosing situations for the individual pupil and school that would not be reached by the standardized test; they can be given during a normal recitation, thus doing away with the artificial conditions created by standardized tests; they secure more definite results than the ordinary examination; they will help to establish minimal essentials and may be used as a means of comparison in classes, schools in the same town, and in a wider distribution when desired; they secure for the teacher a body of facts in addition to her own judgment. To the teacher of home economics, probably more than to the teacher in any other field, the informal test will be a means of helping toward the goal of objective measurement.

An informal test is organized by the class-room teacher; the material used for the test is that which she considers most vital in her teaching. It is a test with a personal touch, worked out for the benefit of her individual class and situation. The first requisite for a test is that it measures some definite ability or product. The teacher must clearly define her reason for giving the test, and the outcomes she desires. She must then select intelligently the material that will measure these outcomes.

This paper gives an illustrative analysis of the objectives which should be in the mind of the teacher in giving a course in textiles; it also offers several informal tests which may be used to determine whether the objectives have been attained. The analysis of the objectives is, of course, a necessary preliminary to the formulation of the tests.

Let us assume that a course in textiles is to be given to juniors and seniors in high school, with special emphasis upon the selection, buying, and use of clothing for the girl of high school age. The specific abilities that should be expected from this course are: ability to select and buy clothing wisely and discriminatingly; ability to evaluate factory-made, made-to-order, and home-made garments; ability to give proper care to clothing; ability to appreciate and understand something of the indus-

tries connected with clothing manufacture; ability to pass intelligent judgment upon the need for proper textile legislation; ability to recognize defects, imitations, and adulterations in fabrics; ability to evaluate the worth of bargains, seasonal sales, fire sales, removal sales; ability to buy clothing with respect to its hygienic qualities.

It is quite evident to the teacher of textiles that the above abilities will be acquired through learning certain facts, exercising certain judgments, having interests and habits developed. It will be necessary, therefore, to determine for each of the abilities the specific things that must be learned or done, in order to be able to devise tests that will measure accurately the accomplishment of the pupil. For example, the ability to select and buy clothing, wisely and discriminatingly, requires: knowledge of the structure of the textile fibers; knowledge of the characteristics of the fibers; ability to identify standard materials with regard to names, prices, widths, and use; knowledge of the weaves generally used in the construction of fabrics, and the relation of these to the wearing qualities and costs of materials; knowledge of a technical vocabulary, which will help in reading and understanding books, and articles; ability to perform the simple tests that may be used in the household, in order to determine quality and value of materials to be purchased; knowledge of such processes of manufacture as are necessary as a basis for judging materials when purchasing; knowledge of some of the economic factors involved in production and consumption; knowledge of the possible ways in which fibers and fabrics may be adulterated.

From the above analysis it will be seen that this subject which we call textiles, involves a range of information, the power to reason or pass judgment, and the ability to appreciate and understand certain social, industrial, and economic situations. The material selected for the course in textiles suggested above, and for our informal tests, has been based upon a study of the articles on textiles in the JOURNAL during the past three years; upon the tabulation of the content of thirteen books, at present used as reference or text books in elementary and secondary schools; and upon the judgments of six teachers in the field, four college teachers who have either taught or are at present teaching textiles, a high school teacher, and a home economics vocational supervisor. This material was selected with care, because we believe that before deciding upon basic material, to be incorporated in a course of study, it is important that we have the consensus of many expert

judgments and not merely the opinion of one teacher. Furthermore we desired to select that material which is common to most textile teaching. Thus we speak a common language, and it will be quite possible to formulate tests that are similar in subject matter and construction, which will check up results or note progress of both teacher and pupil. For example, the informal test determining the pupil's knowledge of materials, and their adaptability and suitability for specific use in clothing and house furnishing, may be given in any community, or at any school level, when the pupil has finished a study of fabrics. The test is illustrated in exercises I and II.

Tests similar to these are the Bowman-Trilling Tests, described in the monograph, "Home Economics in American Schools."¹ They may be used as informal tests, and offer suggestions to the textile and clothing teacher for formulating tests suited to her special locality and needs.

TEXTILE TEST NO. 1

EXERCISE I

Wool Materials Suitable for Garments and Housefurnishing

Name..... Date.....
School..... Grade.....

Below is a list of garments and household furnishings. After each article are several materials. Underline those materials which you consider most suitable for making the article. Work fast and see how many you can mark, but remember that it is more important that you mark correctly than that you mark a great many. Your score depends on the number that you mark correctly.

Example: Kimono: veiling, challis, serge, cashmere. Begin when I say, "begin," and stop when I say, "stop."

1. Suits: serge, poiret twill, challis, chinchilla.
2. Coats: bolivia, chiffon, felt, cheviot.
3. School dress: gabardine, jersey cloth, etamime, velour.
4. Bath robe: cashmere, flannel, alpaca, melton.
5. Overcoats: cravenette, cheviot, poplin, panama.
6. Skirts: whipcord, tricotine, albatross, challis.
7. Banners: bunting, felt, basket cloth, crepon.
8. Capes: tweed, broadcloth, colienne, crepe.
9. Rompers: poplin, shepherd's plaid, velour, voile.
10. Bloomers: serge, mohair, velveteen, broadcloth.

¹Home Economics in American Schools. Supplementary Educational Monograph Vol. II, No. 6 Chicago: Department of Education, University of Chicago, 1920.

TEXTILE TEST NO. 1

EXERCISE II

Cotton Materials Suitable for Garments and Housefurnishings

Name..... Date.....
 School..... Grade.....

Below is a list of garments and household furnishings. After each article are several materials. Underline those materials which you consider most suitable for making the article. Work fast and see how many you can mark, but remember that it is more important that you mark correctly than that you mark a great many. Your score depends on the number that you mark correctly.

Example: Dresses: calico, net, gingham, muslin. Begin when I say, "begin," and stop when I say, "stop."

1. Curtains: cretonne, flannel, scrim, ticking.
2. Aprons: calico, buckram, bobinet, lawn.
3. Towels: dimity, scrim, huckaback, turkish toweling.
4. Waists: voile, madras, eider down, damaak.
5. Skirts: net, gabardine, indian head, cheesecloth.
6. Graduating dress: percale, organdie, flaxon, percaline.
7. Night gowns: nainsook, longcloth, gingham, voile.
8. Infant's coats: pique, velveteen, seersucker, dotted swiss.
9. Middies: duck, lawn, galatea, batiste.
10. Kimonos: crepe, flannelette, denim, khaki.

Lack of space prevents us from presenting, for the work in clothing construction, a detailed analysis similar to the one given for textiles. We offer, however, a simple informal test, designed to measure the ability of a pupil in threading the sewing machine. By using this test, it is possible to determine the ability of an entire class in threading a sewing machine without testing each girl individually or providing a machine for each pupil tested. The test is easily and quickly graded and may be given at any time during the school year or immediately after the pupils have been taught the use of the sewing machine. A sample of the test is shown on the next page.

The informal tests given in this study are only intended as suggestions relative to the kinds of tests the textile and clothing teacher may organize for use in her classes. It is hoped that many textile and clothing teachers will organize and use informal tests. In order that, at some time in the near future, at a textile conference, comparisons may be made, we are suggesting that directions, similar to those which we use for Textile Test No. 1, be used in conducting similar tests.

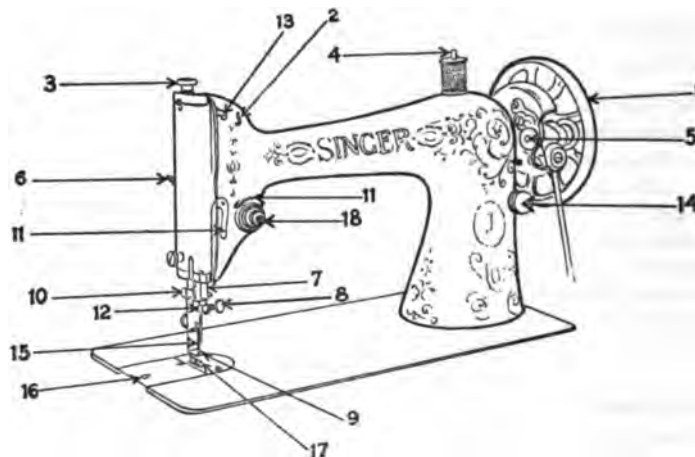
SEWING MACHINE TEST

Name..... Date.....
 School..... Grade.....

In the picture given you, the various parts of the machine head are numbered. Complete the directions started below for threading the Singer sewing machine, by writing and identifying by number the various parts of the machine necessary for threading it, in the order in which the thread passes to meet the eye of the needle.

Directions for threading

To thread the Singer sewing machine, place the spool on the spool pin (4) over the thread guide (?)

*Directions for giving and scoring textile test no. I*

The examiner should remain at the front of the room throughout the entire test. She should set the pupils at ease at the beginning of the test by being pleasant and by avoiding anything that would create a tense situation. Give the test naturally and quietly, and with as little departure from the normal classroom conditions as possible.

Before passing the test, write the *example* that is found on the test sheet on the black board, and explain to the students just what they will be expected to do. Also tell them to wait for the signal, "begin," and to stop immediately when the signal, "stop," is given.

To score the test, give a score of five for each correct answer. The perfect score will be one hundred, since there are two materials which are suitable for each article or garment included in the test.

It will also help in our efforts to make comparisons, if the individual pupils during the year will keep a record of the tests they have taken and the scores made. The greatest benefit, however, of keeping the

record will accrue to the pupil herself, because it should contain suggestions that will act as an incentive for improving her work. We suggest that the pupil use the following plan in keeping her record.

PUPIL'S RECORD SHEET

Home Economics Tests

Name..... School.....
 Age..... City.....
 Grade..... State.....

NAME OF TEST	DATE	PERFECT OR PASSING SCORE	MY SCORE	WHAT SHOULD I DO TO IMPROVE MY SCORE?
.....
.....
.....
.....
.....
.....

For the purpose of helping to formulate definite objectives in teaching textiles and clothing, and in order that we may have the consensus of opinion of many teachers in the field, we suggest that the interested teacher make a list of those topics which she thinks should be common to all textile teaching, and which she intends to use in her informal tests, and send them to the writers of this article. We shall be glad to tabulate this material, and to send the results to those who desire them.

AN EXPERIMENT IN TEACHING HEALTH

VELMA PHILLIPS

State Normal School, Dillon, Montana

This experiment was carried on in a Normal College. Teachers in our elementary schools are urged and expected to put emphasis upon the teaching of health; therefore the normal schools have an especial task, namely, to raise the personal health standards and practices of our future teachers, not only for their personal happiness but to inspire their pupils in the cultivation of proper health habits. If health is to be taught properly the teacher should furnish an object lesson in health.

PROCEDURE

The class was composed of 20 students, all of whom were planning to be teachers in the elementary schools, and were taking the regular two year diploma course. On the first day the purpose of the class was explained as

follows: (1) that emphasis was to be placed upon the nutritional needs of the body, wise choice of food, food values, and the effects of cooking; (2) that all students were to become part of an experiment to ascertain the effect of putting into practice this knowledge (twenty health habits were recorded and of this number seven were to be reported upon daily); (3) that a record was to be kept of the sicknesses and minor ailments, such as headache, cold, insomnia, stomach disorders; also reports of their general vitality, abundant energy, and freedom from that feeling of being "tired and worn out."

All students were examined by the school nurse and physician, as follows: weight, height, pulse, respiration, previous illness, throat, mouth, nose, eyes, heart, and blood. The physician found the class free from serious defects. All eye trouble was receiving attention; the hemoglobin count fell below 100 in only two cases; there was one bad case of tonsils, which was not attended to until after the experiment closed; none of the class was seriously over or under weight. The health of the class was so much above the average that the only tangible results which could be expected for the three months, would be in the following points: (1) freedom from colds, headaches, and minor ailments; (2) increased state of vigor and vitality.

The health habits recommended furnished the outline for the course.¹ Some of these seem childish for college women but were included because the students were to use the material in teaching in the grades. The habits were:

1. Sleep eight hours every day with windows open.
2. Stay out of doors three hours every day, one hour in brisk exercise.
3. Take "setting up" exercises every morning for 10 or 15 minutes.
4. Stand and sit erect.
5. Take at least two full baths every week.
6. Brush teeth properly for five minutes every day.
7. Wash hands before every meal.
8. Keep finger nails clean.
9. Cultivate the habit of keeping fingers, pencils, etc. out of mouth.
10. Have a bowel movement every morning.
11. Avoid undue exposure in cold weather because of foolishly thin clothing.
12. Avoid unnecessary worry and imaginary sickness.
13. Drink or eat in some form a pint of milk a day.
14. Drink six cups of water a day.
15. Eat regularly three times a day.
16. Eat sweet foods only at the end of a meal.
17. Eat some fruit every day, preferably fresh fruit.
18. Eat two vegetables every day, if possible one leafy vegetable.
19. Drink tea or coffee only once a day, if at all.
20. Learn to like all palatable foods, "Eat for nourishment, not amusement."

The following were considered by the group the most important for daily reports: Hours of sleep, hours out of doors, number of vegetables eaten (excepting potatoes), fresh fruit eaten, sweets eaten between meals, calories eaten per day, bowel movement (indicate if cathartic is taken).

¹ Lesson plans are on file in the JOURNAL Office.

Laboratory work consisted in applying the principles of cooking to those foods which are of nutritional value but frequently unpopular, namely, cereals in different forms, winter vegetables, milk soups, desserts made with milk, dried fruits and vegetables. Emphasis was placed upon economy in the use of food, and the relationship between the family budget and the food budget.

RESULTS

Results from such an experiment cannot be so specific as one would desire, and perhaps can be justly criticised, in that they may be influenced by personal opinion, prejudice, and desire on the part of the students to "make a good grade." These points were taken into consideration, and effort was made to eliminate causes for error by developing in the class an experimental state of mind. The last day the class was assured that all grades were complete, and were asked to answer the following: 1. Has the the experiment changed your mode of living in any way? 2. Can you see any improvements in your health? 3. Have you learned to like any food material?

Eleven stated that they had been eating more fruit.

Ten spent more time out of doors. The average for the class was 1.66 hours per day; for the ten, 1.93 hours per day; for the others, 1.34 hours per day.

Seven had more sleep. The average for the class was 7.96 hours per day; for the seven, 7.98 hours per day; for the others, 7.96 hours per day.

Eight had acquired the habit of eating sweets less often between meals.

Ten drank more milk. Eleven drank less tea and coffee. Eight of those who drank more milk drank less tea and coffee.

Six ate more cereal, especially oatmeal. One ate less meat.

Different members of the class had learned to like cereals, cabbage, carrots, leafy vegetables, milk, onions, parsnips, prunes, spinach, squash, turnips, tomato soup.

Three noted an improved condition of the skin; eight were freer from headache, three were freer from constipation; two were freer from indigestion; nine had more vitality; one was freer from colds. As a rule, those to whom the "health habits" meant changes in their mode of living noted improved health.

CONCLUSION

It was more evident than in the average class beginning food study that the importance of the principles of right living and correct diet were impressed upon their minds. One student, considered by the faculty as below the average in mental ability, successfully put her knowledge of health habits into application in her third grade teaching.

Four students, during health week, planned and supervised the serving of hot school lunches and emphasized the importance of proper breakfasts and dinners by planning, and putting into the hands of each child, typical breakfast and dinner menus for the week. One student, a member of the editorial staff of the school paper, published to offer suggestion to teachers of the state on improved educational methods, wrote up the experiment advising its adoption.

For "Health Week" the members of the class were asked to write suitable one-act plays to teach health habits and to interest people in living them. These plays showed that they had become quite observing of dietetic sins and their results.

Health classes, in which emphasis is placed upon the application of principles of cookery and of nutrition, need not detract from this knowledge but should serve to make it more vital.

NEW YORK NUTRITION COUNCIL

REPORT OF COMMITTEE ON TRAINING STANDARDS¹

The Committee on Training Standards for Nutrition Workers realized that training was essential not only for the success of the nutrition worker but for the success of the work itself. Knowing that the number of competent nutrition workers is small and that the demand is a growing one, the committee aimed to be practical by erecting standards that are within reach; moreover, in formulating standards that were too high the committee felt it would not only limit the possible number of workers but would put boundaries on nutrition work itself as it would confine the work to those communities that could afford to pay the high salary of an expert. The committee tried to make its recommendations general, yet definite enough to be helpful. In specifying the ground to be covered during the course of study the committee aimed to think in terms of "subjects" rather than of "courses." No attempt is made to state the length of time needed to complete the course. Much will depend on the previous training of the applicant. The personnel of the students taking the course may be divided into two classes.

A. Students who elect these subjects during a regular four-year college course.

B. Nurses, instructors in physical education, social workers, domestic science teachers, and other teachers who wish to supplement their previous training in order to become nutrition workers.

¹ Prepared for the first annual meeting of the New York Nutrition Council, May 20, 1921.

TRAINING FOR FIELD WORKERS IN NUTRITION

Definition. A field worker in nutrition is one who works with the physician on the nutrition of children either in nutrition classes, or the homes, or both.

Prerequisite to training. The prospective nutrition worker should be a high school graduate.

Training. Subjects taken during training should be on a collegiate basis.

<i>Course of Study</i>	<i>hours*</i>	<i>per cent</i>
Food and nutrition (general chemistry a prerequisite): Chemistry of nutrition, chemistry of food, dietetics, food economics, cookery..	690	46
Physiology (including bacteriology) and hygiene.....	240	16
Psychology and methods of pedagogy (including child study)...	120	8
Sociology and economics.....	240	16
Case study (study of family problems).....	120	8
Record keeping.....	45	3
Symptomatology (to be given by a physician).....	30	2
Public speaking.....	15	1
Total	1500	100

*An hour is a period of 50 to 60 minutes.

TRAINING IN FIELD WORK

Intensive course of three months under supervision.

Age limit. The nutrition worker should be at least twenty-one years old before beginning work.

TRAINING FOR SUPERVISORS OF NUTRITION

There are organizations large enough to employ several nutrition workers. In order that a program may be worked out that will be coherent, it is very desirable that a nutrition supervisor be appointed by these organizations. The committee recommends that in order to qualify for this position the applicant should not only complete the subjects outlined above but should have a year's experience in field work. She should also have attended a nutrition seminar in order that she may become acquainted with recent research work in nutrition and prepare herself to follow developments in this subject in the future. For the person about to become a supervisor of nutrition in the schools, a course in school administration is recommended. It is also recommended that the supervisor of nutrition be a college graduate.

The following persons were asked to form the committee on training standards for nutrition workers: Mary G. McCormick, State Department of Education, *Chairman*; Dr. Hugh Chaplin, Bellevue Hospital; Lucy H. Gillett, A. I. C. P.; Annie V. Goodrich, Henry Street Settlement; W. F. Johnson, Children's Aid Society; Dr. Mary Swartz Rose, Teachers College; Mrs. Amy D. Storer, Atlantic Division, American Red Cross; Dr. Ira S. Wile, Mt. Sinai Hospital; Dr. Jessie F. Williams, Teachers College.

STUDIES ON THE EFFECT OF STORAGE UPON THE KEEPING QUALITY OF CERTAIN VEGETABLES CANNED BY THE ONE PERIOD COLD PACK METHOD¹

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Division of Home Economics, University of Minnesota

An examination of the process periods advocated for several states lying wholly or partially in the same latitude as Minnesota suggests that some factor other than those commonly recognized may possibly account for the varied recommendations (see table 1).

TABLE 1

Showing the process periods advocated in bulletins published for use in seven northern states

VEGETABLE	NUMBER OF MINUTES ADVOCATED FOR PROCESS PERIODS							
	Oregon (1)	North Dakota (2)	South Dakota (3)	Wiscon- sin (4)	New York (5)	Vermont (6)	Maine (7)	U. S. Dept. Agr. (8)
Beet greens.....	90	150	120	180	180*	120	90	120
Beets.....	90	60-90	90	90	90	90-120	90	90
Carrots.....	90	60-90	90	90	90	90	90	90
String beans.....	120	90-120	120	120	180*	90-150	120	120
Corn.....	180	180	180	180	180*	180-240	180	180
Tomatoes.....	22	22-25	22	30	22	20-30	22	22
Pumpkin.....	60		120		120*	90	60	120

* The intermittent sterilization process is recommended.

In some of the process periods listed in table 1, the times allowed are probably so short that complete sterilization is not effected. Castle (9) questions the completeness of sterilization for vegetables packed in glass jars and heated in a water bath one hour on each of three successive days. Incomplete sterilization may not always result in a product which is subsequently considered inedible. Bushnell (10) found that some of his experimental packs which apparently kept well contained bacteria or spores, especially if acid were present or if the container were sealed to exclude air. Out of three hundred seventy samples of canned vegetables purchased in different parts of the United States Weinzirl (11) found that seventy-six or 20.5 per cent of the marketable cans contained viable bacteria. Certain cans which contained bacteria were incubated at temperatures varying from 28° to 37°C. for periods varying from one week to one month without resulting in spoilage. Weinzirl attributes the keeping quality to the absence of oxygen in the cans, thereby emphasizing the importance of a vacuum in cans.

¹ Data taken from thesis submitted by Winifred Case Knapp in partial fulfillment of the requirements for the degree of Master of Science.

Cheyney (12), who examined one-hundred forty-five merchantable cans of vegetables, reports the presence of viable organisms in 6.2 per cent of the cans.

The available data on the effect of storage temperature upon the keeping quality of canned vegetables suggest the need for additional experiments. Bitting and Bitting (13) emphasize the importance of cooling cans quickly before stacking, and advocate the selection of cans from the interior of the stack as well as from the exterior, in picking representative cans for examination. The interior of a large stack of cans is reported as remaining warm from ten to twenty days. Genung (14) found that storage at room temperature resulted in less spoilage than storage in a bacteriological incubator, and advocates immediate storage in a cool place.

It is evident from these citations that the presence of bacteria does not necessarily result in an inedible product. It is probable that bacteria or spores which are capable of rendering a canned product inedible find a cool place of storage less favorable for their development than a warm place. The present investigation has been undertaken for the purpose of determining the effect of different conditions of storage upon the keeping quality of certain vegetables canned by the one period cold pack method. No attempt has been made to study the bacterial flora of the canned products. It is probable that some bacteria in canned goods are quite as harmless as many of those which are taken with uncooked food products, whereas others may be highly objectionable because of the deleterious effect which they exert upon the quality of the canned product or because of the ill effects which are experienced by the consumer. The conditions, under which vegetables should be canned in order to destroy all microorganisms which would render the canned product inedible or harmful to the consumer, constitute a field in which additional bacteriological studies are needed.

EXPERIMENTAL

The following vegetables commonly canned in Minnesota were selected for this investigation: beet greens, beets, green string beans, wax beans, carrots, corn, tomatoes, and pumpkin. This group offers variety in chemical composition, in physical properties and in the parts of the plant commonly used for food. The experiments reported in this paper were performed at an altitude of approximately 1000 feet. In order to work as speedily as possible, all equipment and specially prepared data sheets were assembled before the preparation of the vegetables was begun. Every effort was made to obtain vegetables of good texture gathered on the day of canning, to have them free from apparent disease or decay, and to hold them in good condition until used. The vegetables were thoroughly washed in tap water and suitably prepared for blanching.

The vegetables were blanched by steaming except in the case of tomatoes which were scalded to loosen the skins. Inasmuch as steaming results in the loss of lesser quantities of mineral salts than boiling (15), a tin household steamer 5½ inches high and 11 inches in diameter, having a tightly fitted flanged cover was placed on a three quart basin, so fitted to the steamer that little or no steam was lost from the boiling water. The period of blanch-

ing was determined by noting the hour at which the cover of the steamer was in place and that at which the steamer was removed. In selecting the blanching period, a time of such a length was selected that further shrinkage of the vegetable was reduced to a minimum. One or two minutes were allowed for tomatoes, 5 minutes for pumpkin, 7 minutes for string beans and corn, 10 minutes for carrots, 15 minutes for beet greens, and 25 minutes for beets.

The blanched vegetables were cold-dipped for one minute, allowing nine quarts of tap water to one steamer of vegetables. The temperature of the water varied from 11° to 30° C. The beet greens were drained for five minutes in a colander. The mass of greens was loosened and turned with a fork for one minute of the draining period. String beans, corn, and pumpkin were drained for a minimum period of five minutes. No constant amount of time was allowed for beets, carrots, and tomatoes.

The vegetables were not graded before packing. Beet greens and tomatoes were packed whole. Beets under 2½ inches in diameter were packed without cutting, and the larger beets were cut horizontally into three or four pieces. The string beans were cut into lengths varying from ½ to 1½ inches. For blanching, carrots under one inch in diameter were left whole; those over 1 inch and under 1½ inches in diameter were cut into two lengthwise pieces; and the larger ones were quartered lengthwise. After the cold dip the carrots were cut horizontally into pieces ½ to ¾ inch in length. The corn kernels were cut from the cob at approximately one-half their depth and the pulp remaining was scraped from the cob. The pumpkin was cut into pieces approximately ¾ inch by 1½ inches by 1½ inches in size. The containers used were glass pint jars fitted with porcelain lined metal covers and a good grade of rubber.

In general, the vegetables were packed to secure maximum economy of jar space, provided that the vegetable could be removed with the retention of the shape of the pieces, if desired. An effort was made to have the packs of each vegetable of comparable density. When the densities of the packs were computed in terms of the grams of cold dipped vegetables per cubic centimeter of jar capacity, the figures for the several series of each vegetable varied within rather narrow limits. The average densities for the vegetables were as follows:— 26 jars of beet greens, 0.933; 27 jars of beets, 0.764; 9 jars of wax beans, 0.739; 26 jars of green string beans, 0.788; 18 jars of carrots, 0.796; 9 jars of sweet corn, 0.945; 30 jars of tomatoes, 1.025; and 27 jars of pumpkin, 1.017. Subsequent comparisons between the keeping quality of individual vegetables and the densities of the packs showed no constant relationship between these factors within the limits of the densities represented in these experiments. In somewhat wider ranges of densities, Denton (16), working with carrots, and Castle (9), experimenting with spinach and carrots, found that greatly increasing the density of the pack decreased the rate at which heat penetrated to the center of the jar.

In all cases, where water was used as such or as an ingredient of brine for completing the pack, tap water was boiled vigorously for five minutes, allowed to settle, and decanted. A good grade of commercial salt was used. No liquid was added in packing the tomatoes or pumpkin. In some packs of the former, liquid was discarded with both vegetables, the pulp was heaped above the top of the jar, a teaspoon of salt was added to each jar and the cover was pressed down before adjusting for processing. Water and one teaspoon of salt per pint were added to complete the pack of beet greens. It was found convenient to place a portion of the two per cent brine in the jar before introducing string beans or corn into their respective jars. Two per cent brine was also used for carrots and beets.

Of the [methods of processing in common use, the water bath was chosen because the outfit for this method can be devised from ordinary household equipment, and consequently this method is very commonly used. The processing outfit consisted of an aluminum kettle, 10½ inches high and 9 inches in diameter, having a closely fitted set-in cover. A wire rack raised the jars one inch from the bottom of the kettle. With sufficient water to allow a depth of one inch above the covers of four pint jars standing on the rack, the volume of the water bath was 5½ quarts. The median temperature of the bath was 75°C. when the first jar was immersed, a temperature low enough to avoid breakage and high enough to retard

the action or development of certain undesirable microorganisms. The bath was held over a very low flame until all four jars of the series were immersed immediately after the packing of each. The median temperature of the bath when Can IV was immersed was 80°C. The bath was slowly brought to the boiling point, previous trials having indicated a relatively small loss of liquid with such a procedure. The covers of the jars were screwed lightly against the rubber. In a few cases five jars were processed instead of four jars.

The process periods chosen were for the most part representative of those advocated in bulletins for the northern states. In order to test the rate at which interior temperatures changed, a record of the hours at which 80°C. and 98°C. were reached was kept for Can IV of each series, using the method described by Denton (16). The process periods cited in this report represent the number of minutes elapsing from the hour that the water bath was vigorously boiling after the packed jars were immersed to the hour that the jars were removed one at a time, for sealing. After testing the seals, the jars were allowed to stand, right side up, in a laboratory until cool.

The extremes of temperature to which canned vegetables are subjected in the home are those obtaining in a vegetable cellar and in a kitchen. In these experiments the only storage place available, which compared in temperature with a good vegetable cellar, was a large cement walled root cellar built partially into a hillside. No control of temperature was possible in this cellar, and the extremes of temperature noted with a maximum and minimum thermometer were 0° and 23°C. Conditions of temperature comparable to a heated summer kitchen were provided in a bacteriological incubator, the temperature of which ranged from 28° to 32°C. with the exception of the temperature for one tomato series and for the pumpkin experiments where the limits were 25° and 30°C.

Triplicate series of each process period tested on each vegetable were run, each series for a given process period being stored under a different condition. One series was kept for at least four months in the root cellar, a period arbitrarily chosen as representative of storage for a season in a home cellar. A second series was placed in a bacteriological incubator for ten days. The third series was stored in the root cellar for a period of ten days for the purpose of determining the correlation between the keeping quality of vegetables stored for a ten day period in a bacteriological incubator and a cellar. The canned products were placed in storage on the day upon which they were canned, with the exception of a few incubator series which were kept in the laboratory over night, because the incubator was difficult of access at night.

Members of the instructional staff of the Division of Home Economics judged the keeping quality of the canned products. All jars which were considered inedible by the majority of the judges are recorded as "inedible" in Table 2, although in several cases the degree of spoilage was so slight that the judges disagreed.

An examination of the data in Table 2, in which "thermometer jars" have been omitted, shows very clearly that storage in the incubator for 10 days resulted in far greater spoilage—33 jars out of 62 jars—than storage in the root cellar for 4 months—5 inedible jars out of 60 jars—or storage for 10 days in the cellar—4 inedible jars in a total of 53 jars. Data given on the records of the judges made it possible to compare the quality of the vegetables for these series. Fourteen of the 29 edible jars stored for ten days in the incubator graded below "good" in flavor; five of the 49 edible jars stored in the root cellar for ten days graded below "good," and five of the 55 edible jars stored for four months graded below "good."

For beet greens, there was great similarity in all of the factors for which a record was kept, save those of storage temperature and keeping quality, the 60 minute process period showing total spoilage for the incubator series. A 60 minute process period for beets proved unreliable irrespective of the conditions of storage. A 90 minute process period was satisfactory only for the products stored in the root cellar. Even the beets processed for 120 minutes and stored in the incubator, while judged edible, showed a very low grade for every jar when compared with the other edible jars of the series.

TABLE 2

Showing the effect of storage upon the keeping quality of vegetables

VEGETABLE	PROCESS PERIOD	KEEPING QUALITY					
		Root cellar storage, 4 months, 0°-23°C.		Incubator storage, 10 days, 28°-32°C.		Root cellar storage, 10 days, 0°-23°C.	
		Number jars, edible	Number jars, inedible	Number jars, edible	Number jars, inedible	Number jars, edible	Number jars, inedible
	<i>minutes</i>						
Totals.....		55	5	29	33	49	4
Beet greens.....	60	3	0	0	3	3	0
	90	3	0	3	0	3	0
	120	3	0	2	0	3	0
Beets.....	60	2	1	0	3	1	2
	90	3	0	1	2	3	0
	120	3	0	3	0	3	0
Wax beans.....	120	3	0	3	0	3	0
Green string beans....	90	5	1	2	4	4	1
	120	2	1	0	6	3	0
Carrots.....	90	1	2	0	3	2	1
	120	3	0	2	1	3	0
Corn.....	180	3	0	3	0	3	0
Tomatoes.....	22	6	0	3	3	3	0
	30	6	0	4	2	3	0
Pumpkin.....	60	3	0	0	3	3	0
	90	3	0	2	1	3	0
	120	3	0	1	2	3	0

Some of the spoilage for green string beans may undoubtedly be attributed to the fact that it was impossible to obtain a uniformly good quality of raw material. It is significant, however, that two of the nine jars, stored for four months, and one of the eight jars, stored for ten days in the cellar, spoiled, while ten of the twelve incubator-stored jars of beans were judged inedible. One-fourth of the jars of carrots stored in the cellar spoiled, whereas two-thirds of those placed in the incubator were inedible.

Sweet corn is the only vegetable reported in these experiments in which the incubator-stored products graded uniformly as high as the cellar-stored products. That all of the microorganisms found in vegetables may not be destroyed is suggested by the fact that, in several cases in which tomatoes kept well, the interior temperature of the jar at no time exceeded 80°C. Both tomatoes and pumpkin showed a high proportion of inedible jars for the incubator-stored products, with no spoilage for the cellar stored jars.

DISCUSSION OF RESULTS

Inasmuch as vegetables from the same source were used and subjected to comparable treatment for the series compared, the time or temperature of storage is the principal variable. Examination of the experimental data shows no constant relationship between the length of time that the vegetable was held above a temperature of 80° or 98° C and spoilage. It should be noted, however, that the judging data showed certain observations common to many of the thermometer jars. The amount of liquid in the thermometer jar at the end of the process periods in approximately one-half of the series exceeded that of the other jars in the same series, and in many cases the difference was marked. Thompson (17) found that the rate at which heat penetrated a jar of canned vegetables was favorably influenced by the presence of free liquid. It is possible that the temperature noted in the thermometer jar was higher than that in the other jars in some of the series.

It is evident that the merits of a given procedure in canning cannot be considered apart from the temperature to which the stored product is to be subjected. Where it is desirable to test out a canning procedure within a relatively short period, it should be noted that the keeping quality of vegetables stored for a ten-day period in a cool cellar closely parallels that of vegetables stored for a minimum of four months in a cellar. The results of these experiments offer one possible explanation for the failure of some workers to verify conclusions stated by other investigators. It is entirely possible that a process period which proves successful when the product is stored in a Minnesota cellar might not be satisfactory if a canned vegetable with a similar history were stored in a cellar in the south. Again it can be seen that a product which would keep satisfactorily in a cool place of storage might spoil if the only place of storage were a hot foods laboratory or an apartment kitchen. Furthermore, the large amount of spoilage occurring in the incubator-stored vegetables suggests the desirability of storing canned products in a cool place immediately.

SUMMARY

The more important findings in the experiments on the canning of beet greens, beets, string beans, carrots, corn, tomatoes, and pumpkin may be set forth as follows:

1. The increased time required for processing certain vegetables when stored in an incubator, together with the greater amount of spoilage which occurred in the incubator-stored vegetables, indicates that the length of the process period cannot be considered apart from storage conditions. Moreover, a process period that is successful in one section of the country may prove unsatisfactory when used in a warmer climate.

2. Approximately one-half of the incubator-stored vegetables spoiled, whereas about one-twelfth of the vegetables stored in the cellar were inedible.

3. When the grade for flavor as well as the spoilage of canned vegetables is considered, the deleterious effect of the incubator-storage upon the keeping quality is further emphasized.

4. The amount of spoilage occurring in a ten-day period in a lot of canned vegetables may probably be taken as a fair index of the amount of spoilage which will occur in a period of four or more months of cellar storage.

5. The relatively large amount of spoilage observed in the incubator storage indicates the desirability of storing vegetables in a cool place immediately after canning.

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A PRACTICAL PROBLEM IN DIETETICS

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A university course in dietetics should be two-fold in nature. First, it should connect up with preliminary courses in food preparation, physiology, and chemistry, both organic and physiological, in a scientific presentation of the fundamental principles of nutrition and of all the recent developments in this science; and it should afford opportunity for training in proper valuation of published articles relating to nutrition. Such training is needed by home economics teachers, dietitians, nurses, institutional managers, and by those engaged in other professions requiring a knowledge of food preparation and selection. It is also a prerequisite for all advanced work in nutrition. Second, such a course in dietetics should train girls for homemaking. It should thoroughly impress on all students taking the course, the importance of proper selection of food for themselves and their families. It should develop such an interest in the subject that they will keep up their reading along these lines, for its great practical value to themselves and others.

The following studies, which were made in the first quarter of their course by the students in the dietetics classes in the University of Washington, as part of their laboratory work, were designed to meet this second need. About 70 per cent of the girls were fortunate enough to be living in their own homes, and this report is concerned chiefly with this group.¹ Charts and statistics may, at first thought, seem far removed from the problem of feeding oneself and family. However, the students derived so much benefit from this portion of their work that the plan of the experiment is presented as a suggestion for others. The results are presented for their own value and interest.

PROCEDURE

In October the students began a study of their customary diet. Those living at home, with the cooperation of their mothers, kept accurate record of all the food consumed in their families for one week, wherever possible keeping the record in terms of weights of raw materials used. The total number of meals served was also recorded. The students were instructed that the meals were to be planned as nearly as possible along well-established, customary lines.

Classifications of the foods used were made as follows:

Group 1. Sweets (including sugars, candies, syrups, jams, jellies, preserves, bakery cookies and cakes).

Group 2. Seed foods, cereals, and cereal products (including bread, crackers, flour, breakfast foods, rice, macaroni, and other cereal products, dry peas, and dry beans.)

¹ Girls who ate at the University Commons, or at boarding houses, weighed their individual portions, using the tables in Locke's Food Values, for their calculations.

Group 3. Non-leafy vegetables (including all tubers and root vegetables, pumpkin, squash, sweet corn, etc.).

Group 4. Green vegetables (including spinach and other greens, lettuce, celery, cabbage, green beans and peas, Brussels sprouts, and cauliflower).

Group 5. Fruits of all kinds,—fresh, canned, and dried.

Group 6. Meats, poultry, fish, shell fish, and game.

Group 7. Meat substitutes, such as eggs, cheese, and nuts.

Group 8. Milk of all kinds (fresh, dried or evaporated, whole, skimmed, or buttermilk).

Group 9. Other dairy products, such as butter, cream, ice cream.

Group 10. Other fats, oils, and fat rich foods.

No record was kept of coffee, tea, spices, baking powder, vinegar, because they are of practically no food value.

At the end of the week, totals for individual items in each group were obtained; weight of water-free, waste-free food, in individual items in each group, calculated; and weight of protein and the calorie value similarly calculated. After the individual items were completed, the total weight of water- and waste-free food, protein, and total calories for each group were added separately and a chart prepared which showed total original weights, total water- and waste-free weights, total protein weights and total calories for each group. The per cent of actual food and also of protein derived from each group, total calories per person per day, and total weight of protein per person per day were then calculated.

Results were criticized in class, keeping in mind the number of children, state of health, and degree of activity of the members of the household. The students were shown where their diets were faulty and how they could be improved. As was to be expected, many of them were too low in leafy vegetables, fruit, and milk, and too high in starchy foods and in meat.

2. After the students understood what constitutes a balanced diet, those living in their own homes repeated the study, but with this difference,—they planned the meals themselves and agreed to make a sincere effort to see that their families were given the proper combination of food. If possible, they were to do this with no greater expenditure of money than was customary in their families. In addition to data collected in the first study, they recorded the amount of money spent for each type of food, calculated the percentage distribution of total amount spent among the ten groups, and the average cost per person per meal. Where foods had been canned at home, cost was charged at retail grocery prices.²

DATA

Leafy vegetables increased up to 500 per cent. Milk consumption increased up to 600 per cent. Fruit consumption, in most cases, increased remarkably.

² In the first study, eggs and cheese were included in Group 9 and nuts in Group 10, which makes some difference in comparison. Also the first 3 groups were taken as a whole, not separated as in the later method. The strict classification into ten groups as outlined earlier is much more desirable and will be adhered to in the future. Distribution of cost will be calculated for all such studies.

In Chart I we see that $\frac{1}{3}$ of the actual food of these families was derived from groups 1, 2, and 3, at about $\frac{1}{4}$ of the total cost. Meat and meat substitutes constituted less than $\frac{1}{4}$ of their total food, but cost almost as much as the $\frac{1}{3}$ derived from groups 1, 2, and 3. About $\frac{1}{2}$ of the total food was derived from milk, butter, cream, and ice cream, at a little over one-fourth of the total cost. Approximately the same amounts of money were spent for meat, milk, butter, fruit, and cereals. Leafy vegetables are about as expensive as meat, and fruits much less expensive than meat. Groups 1, 2, and 3 are in every way the cheapest foods.

From "Dietary Customs"³ by Velma Phillips and Laura Howell, figures are given comparing Dr. Sherman's suggested desirable distribution of food cost with that determined on investigating this matter in Italian, Jewish, and Negro districts in New York. Dr. Sherman suggests spending 25.0 per cent for grains, 20.0 per cent for fruits and vegetables, 20.0 per cent for meat and eggs, 20.0 per cent for milk and cheese, and 15.0 per cent for miscellaneous items. The averages found among the 105 families, whose dietary habits were studied by Miss Phillips and Miss Howell, showed the following expenditure: 23.8 per cent for grains, 13.8 per cent for fruits and vegetables, 33.5 per cent for meat and eggs, 13.3 per cent for milk and cheese, and 15.5 per cent for miscellaneous items.

In Chart II, the averages are compared directly with similar averages made from the list of foods which the United States Department of Labor⁴ gave as being required for a family of five for one year. A more liberal allowance of leafy vegetables, such as cabbage and spinach should have been provided in this Government budget. Considering the fact that there are three growing children in this family, the milk allowance should have been larger. These increases could take the place of some of the cereal foods, for which a very liberal allowance is made. On the whole, the budget stands comparison very well.

CHART I
Average distribution of foods and cost for 15 families*

GROUP	PER CENT DISTRIBUTION OF TOTAL WATER- AND WASTE-FREE FOOD		PER CENT DISTRIBUTION OF TOTAL PROTEIN	PER CENT DISTRIBUTION OF TOTAL COST	
1. Sweets.....	10.7	} 50.4	34.6	7.4	} 25.5
2. Cereals.....	27.5			12.0	
3. Non-leafy vegetables.....	12.2			6.1	
4. Leafy vegetables.....	1.4	} 12.1	4.1	5.2	} 18.4
5. Fruits.....	10.7			13.2	
6. Meats.....	8.8	} 11.5	34.5	15.0	} 23.5
7. Meat substitutes.....	2.7			8.5	
8. Milk.....	14.1	} 21.5	25.2	14.3	} 27.3
9. Other dairy products.....	7.4			13.0	
10. Other fats.....	4.4	4.4		4.4	4.4
Average calories per person per day.....					2600
Average grams protein per person per day.....					86.5
Average cost per person per meal.....					18.9 cents

* The fifteen families, taken from the second study, are those which showed the use of a pint or more of milk per person per day. A few of these still showed too low a per cent of leafy vegetables.

³ See *Journal of Home Economics*, Sept. 1920, p. 396.

⁴ *Monthly Labor Review*, June 1920.

CHART II
Detailed chart of nine families showing best balanced diets compared with government budget*

Family.....	No. 1	No. 2	No. 7	No. 8	No. 10	No. 11	No. 13	No. 21	No. 25	AVERAGE OF 9 FAMILIES	GOVERNMENT BUDGET
Number of meals.....	40	40	78	49	76	57	63	95	90		
Per cent actual water-free edible food in various groups											
Group 1. Sweets.....	15.5	10.2	2.6	11.0	2.8	9.6	12.3	8.2	8.0	8.9	10.7
Group 2. Cereals.....	23.4	13.0	30.0	24.1	25.0	42.6	33.0	28.0	34.0	28.1	43.0
Group 3. Non-leafy vegetables.....	10.8	16.5	11.0	8.1	20.0	7.7	16.2	18.0	5.0	49.6	12.6
Group 4. Leafy vegetables.....	3.6	3.0	2.6	1.6	3.2	1.8	1.0	1.0	1.0	2.1	0.5
Group 5. Fruits.....	4.7	4.7	24.0	12.1	9.0	11.6	11.3	6.8	12.0	12.8	10.7
Group 6. Meats.....	9.9	3.9	4.0	10.5	17.0	5.2	5.0	9.5	11.0	8.4	5.5
Group 7. Meat substitutes.....	2.3	7.3	1.7	2.5	2.8	1.2	3.2	1.5	1.6	11.1	2.7
Group 8. Milk.....	12.8	26.5	10.1	13.4	13.5	11.9	11.3	10.8	19.0	14.4	12.3
Group 9. Other dairy products.....	7.8	9.8	7.4	13.7	1.9	7.9	4.6	9.4	5.0	21.9	7.5
Group 10. Other fats.....	8.6	4.9	4.8	2.7	3.2		2.0	5.7	1.9	3.7	3.7
Grams of protein per person per day.....	78.7	72.6	89.3	106.6	74.4	64.2	113.1	63.1	90.7	83.6	
Per cent distribution of protein in food groups											
Groups 1, 2, 3.....	29.9	18.0	40.0	18.4	31.3	44.3	36.7	33.3	40.0	32.4	
Groups 4, 5.....	3.5	4.4	7.2	6.4	3.3	6.1	4.9	3.9	2.8	4.7	
Groups 6, 7.....	40.0	32.6	20.9	49.9	40.3	27.5	35.3	37.5	18.4	35.6	
Groups 8, 9.....	24.3	44.1	26.2	23.6	24.2	22.6	22.1	25.0	36.3	25.6	
Calories per person per day.....	2625	2285	2955	2515	2920	2100	2990	2075	2277	2527	

* Prices current in Seattle in the past year were used in computing cost. Milk prices in this study varied from 9 to 14 cents per quart.

Per cent distribution of cost in food groups

	6.0	4.8	5.3	2.9	12.1	6.0	10.5	5.4	3.0	6.2	7.5
Group 1.....	10.4	8.0	14.0	13.2	10.0	17.9	14.6	8.6	12.8	12.2	14.0
Group 2.....	8.4	8.1	7.1	6.5	4.2	3.3	4.4	8.8	6.0	24.7	6.6
Group 3.....	6.8	9.4	3.6	6.6	2.7	4.6	7.8	3.9	5.0	5.6	2.0
Group 4.....	16.0	6.5	16.0	13.4	11.2	26.0	14.4	8.8	16.0	19.9	18.0
Group 5.....	15.0	8.4	8.9	10.0	19.7	10.7	6.8	19.0	10.0	12.0	19.0
Group 6.....	10.2	11.0	9.8	9.7	6.0	7.8	13.9	7.4	6.0	21.1	24.8
Group 7.....	10.2	27.6	9.3	14.9	14.3	8.7	13.7	15.5	15.0	14.4	12.3
Group 8.....	9.9	12.7	18.0	22.3	13.2	14.5	9.9	12.5	12.0	28.3	19.9
Group 9.....	6.0	3.1	7.0	1.3	5.0		3.9	4.7	13.0	4.9	4.7
Group 10.....											
Cost per person per meal.....	\$0.18	\$0.18	\$0.23	\$0.23	\$0.17	\$0.15	\$0.194	\$0.15	\$0.123	\$0.178	
No. 1—2 women.	No. 8—3 adults, 1 child.										
No. 2—2 women.	No. 10—3 adults, 1 child.										
No. 7—5 adults—3 women, 2 men (1 man ill).	No. 11—3 adults.										
	No. 13—3 adults.										
	No. 21—4-5 adults (Practice Cottage).										
	No. 25—4 adults, 1 child.										

CONCLUSIONS

The families of the students who did this work in their own homes became very much interested in these studies, and this interest alone was worth all the work involved. Fathers, mothers, brothers, and sisters learned to know the foods that contained the necessary vitamins, the foods valuable chiefly for their energy, those providing protein of good quality, and those containing an abundance of roughage and mineral matter especially calcium and iron. The students were able to get this information across to their parents in this practical way, and they feel that their dietary studies were of great value.

Furthermore, these students learned that it was entirely possible to provide their families with sufficient food properly balanced, at no greater expense than that involved in providing the ordinary bread, meat, and potato diet. One student did this at an average cost of only 12.3 cents per person per meal for the week studied (see Chart II, no. 25).

A PLEA FOR AMERICAN COOKERY AND HOME DISHES

Most of us who have tasted both American and foreign cooking prefer our home dishes, when well prepared, to anything else for a steady diet. Those who travel much and those who depend upon restaurants and hotels miss these home dishes and wish they could get them. Some of the more progressive hotels realize the importance of this matter and have tried to remedy it by installing home kitchens as a part of their equipment. Some of the best restaurants, dining-cars, cafes, and cafeterias also specialize on "home" food. For instance, one evidence that the wishes of the traveling public are not being overlooked, is shown by the Northern Pacific Railway, which has adopted "home" foods and "home" cookery in its dining-car service. A book of instructions for dining-car stewards and chefs on this railway has recently been published by G. W. Nelson,¹ who makes the following statement:

"The art of cookery in all its branches is in such process of evolution that a few years only are sufficient to completely change the methods of preparing dishes once enthusiastically received by the public. Our departure from French and French cookery, and the adoption of plain English designations, and the plain home-like cookery have won the approval of our patrons. The variety of food products adaptable to dining-car service is small compared to that which the large hotel may use with unlimited combinations. We have, therefore, given you a limited specification of dishes that may be run on your specials, together with their prices, and you will strictly confine your menu-making to those things designated, and do not at any time run anything on your specials that deviate from the instructions. All dishes must be prepared according to the recipes which we provide, and these, together with the portion list will be issued to you in circular form."

TABLE NAPKINS IN HISTORY

Generally discarded from fashionable tables at the close of the eighteenth century, the napkin was seldom used or seen by the more modest epicures of Horace Walpole's time. A finger glass and a dessert doily in George the Third's time were placed on the table, on the removal of the cloth, and the latter was regarded as the elegant and sufficient substitute for the old table towel.—*The Table*.

¹ *Hotel Monthly*, 29 (1921), no. 334, pp. 58 and 59.

FOR THE HOMEMAKER

THE ROMAN KITCHEN

CORNELIA G. HARCUM

The Royal Ontario Museum of Archaeology, Toronto

"We may live without poetry, music, and art;
We may live without conscience, and live without heart;
We may live without friends; we may live without books,
But civilized man cannot live without cooks."

Nor can he live long without an organized kitchen. Primitive man prepared his meals in the open air; so no doubt did the Roman shepherds in the days before Rome was the city of the seven hills. In very early times, however, man provided himself with shelter and cooked his meals beneath that shelter.

The Roman house was at first quite simple. The only room, or at least the principal room, was the *atrium*. In it all the life of the family centered. Here was placed the marriage couch; here the mistress of the house worked at spinning with her maids. In the center of this room there was a large hearth which was used both as an altar on which sacrifice was offered to the gods, and as a kitchen range for cooking food. Just above the hearth, a hole in the roof served as a chimney to let out smoke. Such a primitive arrangement was no doubt very defective and the accumulation of soot must have blackened the ceiling and rendered the kitchen anything but attractive. Indeed the word *atrium* may be derived from *ater*, black, and so mean the black room. In the *atrium* too the family dined and perhaps slept as well.

This early simplicity of the Romans prevailed much longer in the country districts than in the city of Rome. In country houses the *atrium*, which was the kitchen as well, long remained the center of the social life of the family, as has the kitchen in farm-houses of a later time. But in the city the growth of refinement soon banished the preparation of food from the *atrium* which now became a more elegant room. Probably as early as the days of Plautus, 254-184 B.C., a special room for cooking,

called the *culina*, had been added to the Roman house. Certainly such a room is mentioned several times in the plays of that author.

The *culina*, or kitchen, was usually a small room located in an unobtrusive part of the house. Vitruvius, a Roman writer on architecture, advised that it be placed on the warmest side of the court. Varro recommended that it be in the posterior part of the house. The same advice was given by Columella who explained that it should be far from the bedrooms and living rooms of the family on account of danger from fire. The kitchen, however, is too humble to figure largely in Latin literature and we must depend chiefly on archaeological excavations for accurate information concerning it. Old Vesuvius made things decidedly unpleasant for the inhabitants of Pompeii on a certain day in 79 A. D.; but by covering that city deep with lava it rendered a real service to men of modern times, for nowhere has antiquity been so literally caught alive as in this buried city. In one of the houses unearthed, a pot stood on the hearth ready to prepare the daily meal. At Pompeii, where every house had a kitchen, the room was usually small with no fixed location. In accordance with the recommendations of the authors it was generally in a rather remote corner where it would least interfere with the arrangement of the rest of the house. Even in the more pretentious houses at Pompeii the size is not more than sixteen by nineteen feet; but the establishments of the rich at Rome no doubt contained larger kitchens.

Near the kitchen there was sometimes a bakery with mill and oven, though after 171 B.C., in the city of Rome at least, bread was usually made in public bake-shops. In many of the larger houses as in the House of the Faun and the House of the Silver Wedding at Pompeii, there was a bath, which by an ingenious idea of the Pompeian architect was placed next to the kitchen for facility in heating water. If there was a stable, as in the Villa Rustica at Boscoreale, it, too, opened into the kitchen. Near the kitchen were also one or more small store rooms for provisions, and, in the House of the Vettii at Pompeii, a small room which may have been for the cook. One would naturally expect to find the dining-room in close proximity to the room for preparing food. The army of slaves in the Roman world probably rendered this arrangement less necessary than at the present time, for these rooms were not always adjoining. Sometimes, however, there was a hole in the wall between them so that food could be passed from one to the other.

How was the Roman kitchen furnished? Not so differently from the kitchen of today as one might suppose. The most important feature was, of course, the hearth which corresponds to the modern kitchen range.

This was built of masonry against one of the walls. Fire was made on top, and underneath there was occasionally a hollow place in which fuel was kept. Sometimes the hearth had projections of masonry rising above it on which utensils were supported over the fire, sometimes they rested on tripods. Near the hearth there was occasionally a small oven not large enough to have been used for bread, but probably intended for pastry.

Over the hearth there was a window to let out smoke. In addition to the hearth of masonry the Roman kitchen frequently contained a small portable stove in which charcoal was burned. One of these in the Naples Museum has at one end four movable cross-bars for broiling, and, at the other, two round frames to hold cooking utensils. The kitchen table was necessary then as now. Sometimes this was of masonry with top of white marble; sometimes, no doubt, it was of wood. To complete the kitchen one finds even a sink provided with pipes to carry off water and waste.

So far the Roman kitchen was not altogether unlike our own, but in one respect, it was rather unique. We should scarcely think of decking the walls of a modern kitchen with frescoes or paintings, but the walls of several Pompeian kitchens show remains of such decoration. In the house which is called the House of the Silver Wedding, there are vestiges of a painting of two household gods and near them a serpent coiled about an altar, representing the genius of the place. On the walls of another house is the goddess of Fortune with a cornucopia symbolic of plenty. Not only were there paintings of the household gods in the kitchen, but occasionally a niche for images of these gods was placed high up in the wall. The Villa Rustica at Boscoreale has a niche ornamented to represent the facade of a diminutive temple.

In addition to furniture and paintings, the ancient kitchen was finally fully equipped with all necessary utensils, in many respects the direct ancestors of those of today. Time and experience have enabled us to improve even on the practical Roman from the point of view of utility, yet with the exception of the fireless cooker, aluminum ware, and electrical appliances there are few modern utensils which were not found in an ancient kitchen. In artistic qualities, however, the cooking utensils of the ancients were superior to those of our own day, for they always combine simplicity of form with beauty of line and proportion.

In the early days of the Roman Republic there were in the average home very few cooking utensils, for few were needed. The national diet

of the early Romans consisted of a kind of porridge called pulse, which preceded even bread as an article of food. This was cooked in a wide-mouthed open bowl as were also the vegetables which completed the meal of the Roman peasant. By wealthier Romans a public chef corresponding somewhat to our caterer was employed for an occasion more elaborate than the family dinner. Professional cooks took their stand in the market-place with their utensils, and were hired to prepare a wedding feast, a dinner party, or a birthday entertainment. They took to the home of their employer, as does the modern caterer, both their assistants and their utensils.

Later, Roman life became gradually more complex and daily meals more elaborate. When the army returned from the East, after the war with Antiochus, oriental luxury invaded Rome, bringing, among other things, dainty dishes and cooks from Asia Minor. As cooks became more numerous and meals more elaborate, utensils for their preparation were multiplied. There were kettles of various shapes and sizes for boiling vegetables, fowl, and meat; pronged forks for taking meat from caldrons; frying and baking pans both round and oblong; gridirons for broiling and spits for roasting a large piece of meat or the whole boar which formed the *piece de resistance* of a formal dinner party. There were also saucepans of various shapes and sizes. In Pompeii, pans with indentures which seem to have been used for frying eggs or for cooking small cakes have come to light. Bread pans or moulds were very early, and loaves baked in them have been found at Pompeii. There were also pastry moulds of fancy design, colanders, kitchen knives, ladles, spoons, sieves, and mortars and pestles for pounding the condiments so lavishly used by the Romans as well as for crushing grain. Both balances and steel-yards were used for weighing the quantity of the ingredients in a recipe, and measuring utensils of various sizes have also been found. Petronius even mentions a hand-mill of boxwood for grinding pepper, and there is in the Royal Ontario Museum in Toronto¹ an article which was probably a meat-chopper. Of course the kitchen of olden days contained also a number of vessels used for storing grain, oil, and honey, the ancient substitute for sugar.

¹ Roman cooking utensils may be seen today in almost every museum, and the Royal Ontario Museum of Archaeology in Toronto is fortunate, not only in possessing many individual pots and pans, but also in having a fairly complete kitchen outfit of a single house. It was found near Thebes and contains twenty-seven pieces of bronze designed chiefly for stewing or boiling.

The materials of Roman cooking utensils were chiefly three: terra-cotta, bronze, and iron. In the days when luxury prevailed in Rome some of them were made of more expensive materials. In Petronius we read of a silver grill which was brought to Trimalchio's table.

The small size of many of these vessels does not indicate that the Romans were gourmands. In this connection one must bear in mind the fact that the French, our connoisseurs in modern cookery, still use small utensils and that food is most delicious when prepared in small quantities.

Where were these utensils made? The question naturally arises, as one studies in detail the cooking utensils which have been found in such numbers in Pompeii and other parts of Italy, in Egypt, and all the Roman colonies, and notes their similarity. Their number suggests that the industry of their manufacture must have been a large one, for in spite of the fact that many have been thrown away in rubbish heaps because archaeologists have deemed them of little importance in comparison with other treasures turned up by the spade, a great many still remain. Their similarity indicates community of manufacture, and it is probable that the great majority of bronze vessels, kitchen utensils included, came from extensive factories at Capua, which were busy from the first century B.C. to the third century A.D. These Capuan wares had a wide sale. Not only were the best products used for the luxurious Italian and Greek houses, but there was an active export trade in them to the north as far as Scotland and northern Sweden. The factory system in Italy in ancient days, however, was probably confined to few industries. Roman laws did not favor corporations, and there were few men at Rome sufficiently wealthy to establish factories, for, although slave labor was cheap, materials were expensive.

The Roman kitchen was, then, not so very different from our own. If one may trust Latin authors, even the chef had some of the characteristics of his successor of today. He was ingenious, thievish, witty, greasy, and inclined to be boastful. One of the cooks in the comedies of Plautus brags that even Jupiter feasts on the odors from his saucepans, and that, when he does not cook, the king of gods goes hungry to bed. Another ancient cook claims that when he removes the lids from his kettles even mourners, returning from a funeral, smile.

THE SYRACUSE HOME BUREAU

EDITH M. BARBER

In Charge of the Bureau

The Syracuse Home Bureau Thrift Kitchen, although a veteran of the war, is still in business helping the homes and the community of Syracuse with problems of living. The Thrift Kitchen, organized by the New York State Food Commission during the war, became a part of the New York State and Federal extension work at the close of the war, and is the headquarters of the Syracuse Home Bureau whose scope is as wide as its name indicates.

The Kitchen which was excellently equipped for canning during the food conservation days is still used for that purpose during the season. Women bring their vegetables, fruits, and jars and do their canning under the direction of the trained workers on the staff of the Home Bureau. One thousand more jars were done in the season of 1920 than during the war year of 1918. The large pressure cookers are used in the winter also by organizations preparing in large quantities for suppers and sales. A small charge is made to cover the cost of fuel.

The Kitchen is also used for classes in food and nutrition work conducted for housewives, for girls' clubs, for public health nurses, and for volunteer aids; and it has also been used for the dressmaking and millinery classes. As the food and clothing work have been overlapping too much for comfort, another room which connects with the office has been rented to be used for the clothing classes and for a Woman's Exchange which the Home Bureau is promoting and which will open as an outlet for handmade articles this fall.

One of the largest services rendered by the Bureau is the information service. The telephone rings constantly with requests for all kinds of information. The questions range from "How much sugar shall I use for jelly?" to "Will you help me to plan a diabetic diet for my husband?" and from "How can I take out a peach stain from my best tablecloth?" to "What kind of a refrigerator do you recommend?" The slogan "Call Warren 8079. Ask the Home Bureau" justifies itself. There are many personal calls at the office where special help is given for individual problems, and a large attendance on Home Bureau Day, Friday of each week, when a talk or demonstration is given.

All the Home Bureau activities, however, are not centered in the Thrift Kitchen; coöperation is given to all health and civic agencies in the

city. An active part was taken by the Home Bureau in organizing a milk campaign undertaken by the combined health agencies of the city which raised the consumption of milk twenty-five per cent. Follow-up work was done throughout the year and a yearly milk week instituted. Nutrition classes are held in coöperation with the doctors and nurses in school time, and accurate records kept in an endeavor to make nutrition instruction part of the regular school program. Classes are held to help public health nurses to deal more easily with the large problems of nutrition which they meet daily. When possible, classes in homemaking are conducted in social centers for organizations requesting such help. In fact, as far as its staff of four workers allows, the Home Bureau acts as a clearing house for homemaking problems. Several more workers could be used to advantage but at present the budget, which is provided by a combination of county, city, and private funds, permits of no increase in the staff. Under the present interpretation of the Smith-Lever law, federal funds cannot be used for city work, although we have the advantage of the franking privilege and the cooperation and supervision of the extension service of the New York State College of Agriculture.

That city women, as well as country women, need and demand the services of the Home Bureau is shown by the constant use which they make of it in the few cities where it is organized. Over five hundred women show their appreciation by paying a dollar a year membership fee. This, however, gives them no more privileges than the non-member, except that of showing materially their interest in better homes and a better community, which is the aim of the Home Bureau.

One of the difficulties encountered in the manufacture of ice cream is the formation of small gritty particles. These are found to consist of tiny crystals of lactose or milk sugar which are quite hard and when present cause the ice cream to be described as "sandy." This subject is now receiving study by the Dairy Division of the Department of Agriculture, which is trying to determine the conditions under which these crystals form so that they can be avoided in the industrial manufacture of ice cream.

EDITORIAL

Will you help to increase the circulation of the JOURNAL through regular subscriptions, student subscriptions, or renewals? The official publication of the American Home Economics Association should be in the hands of every woman trained in home economics, or interested in any phase of this broad field; in the library of every school and college offering courses in home economics. Here is the record of one interested woman, Miss Milam, Oregon Agricultural College, who sent letters to a number of colleges urging subscription campaigns: 575 student subscriptions, 23 full rate subscriptions, 9 memberships. Miss Milam had previously carried on a campaign at Oregon Agricultural College which resulted in 52 new subscriptions and 15 renewals.

Returns from schools who sent in 15 or more subscriptions are as follows:

Oregon Agricultural College.....	67	Stevens Point Normal.....	26
University of California.....	53	Simmons College.....	24
University of Illinois.....	53	Lewis Institute.....	21
Ohio State University.....	38	Stout Institute.....	18
University of Minnesota.....	32	Pratt Institute.....	16

Will you help to make the JOURNAL widely interesting by sending us material or getting other workers to do so? We want concise articles, reports, opinions, ideas, news, from the teacher, the research worker, the extension worker, the homemaker, the institutional worker, the bank consultant, and all other representatives of home economics work. We want to make your JOURNAL better and bigger. The executive committee has appointed the following associate editors to keep in touch with various departments: Day Monroe and the Executive Secretary, News; Edith Barber and Mrs. Hazzard, Social Welfare; Florence Ward, Extension; Katharine Blunt, Foods; Cora Winchell, Education; Ruth O'Brien, Textiles; Henrietta French, Institutional Economics; Alice Biester, Bibliography.

Will you use the JOURNAL? Miss Harris, Office of Extension North and West, U. S. Department of Agriculture, has just written: "We are sending out to our home demonstration agents references to the articles by Miss Bailey, Miss Denton and Mrs. Yeatman, and will call attention to the New York Item." Many of our contributions are valuable and usable.

We have 6,000 subscribers.

Help us to make it 10,000 by Christmas.

High Fat in Diabetic Diets. Dr. Max Kahn¹ recently pointed out the necessity for limiting the fat intake of diabetics as the only means of preventing acidosis. Fenlon² reported successful treatment of diabetic patients by restricting the fat, maintaining the protein intake at a moderate level, and rapidly reducing the carbohydrate until glycosuria disappears. The tolerance is built up by gradual addition of carbohydrate, and finally the fat allowance is increased until it approximately equals the protein. These points of view are in accord with the custom of giving a diet low in caloric value made up largely of protein, because of the necessity for omitting carbohydrate, and because of the fear of producing acidosis if more than a minimum of fat is allowed.

A different point of view is emphasized by Newburgh and Marsh³ who maintain that a high protein diet either produces glycosuria, from being too liberal, or renders the patient unfit for daily activities, if it is too restricted. They have studied the effect of high fat, low protein, low carbohydrate diets in the treatment of 73 diabetics, most of them severe cases. A patient on entering the clinic or hospital is placed on a diet of 900 calories derived from about 90 grams fat, 10 grams protein, and 14 grams carbohydrate. After the patient has been sugar free for 1 to 2 weeks, his diet is increased to about 1400 calories, representing 140 grams fat, 28 grams protein, and 15 to 20 grams carbohydrate. For large individuals a second increase is made, later, reaching about 1800 calories, with 170 grams fat, 30 to 40 grams protein, and 25 to 30 grams carbohydrate. By the use of high fat diets not only are they able to prevent the appearance of glycosuria but existing glycosuria is cleared up; the excretion of acetone bodies ceases soon after the adoption of this treatment; satisfactory nitrogen balance is maintained; the patients leave the hospital and clinic much improved and are in excellent physical condition months afterwards.⁴

¹ Kahn, M.: Problems of the Dietitian in the Care of Outpatient Poor Suffering from Diseases of Metabolism, *Jour. Home Econ.*, 13 (1921), p. 213.

² Fenlon, R. L.: Retention of Protein During Diet Reduction to Relieve the Glycosuria in Diabetes Mellitus, *Amer. Jour. Med. Sci.*, 131 (1921), p. 193.

³ Newburgh, L. H., and Marsh, P. L.: The Use of a High Fat Diet in the Treatment of Diabetes Mellitus, *Arch. Int. Med.*, 26 (1920), p. 647.

⁴ It is of significance to home economics workers that the management of the special diets, their choice and computation to meet the requirements, their preparation and administration to the patients, and their recording, were under the supervision of Dorothy M. Stewart, Dietitian in the University of Michigan Hospital.

Thrice Boiled Vegetables For Diabetic Patients. Definite information on the actual carbohydrate content of thrice boiled vegetables presented in recent papers is welcome to those planning diabetic diets. The assumption that changing the water several times during boiling of vegetables effects a more complete removal of the carbohydrate appears to be correct; in the case of some vegetables practically all of the carbohydrate can be so removed provided a sufficiently large volume of water is used in boiling. O'Reilly and McCabe¹ show that 20 parts of water to 1 of vegetable in each of the 3 extractions are more effective than 10 parts of water, and are sufficient to render vegetable marrow, lettuce, and celery carbohydrate-free, and canned spinach, canned asparagus, turnips, beets, and onions approximately free, while other vegetables studied retain small percentages of carbohydrate. Increasing the number of extractions of vegetables with hot water was found by Wardall² to remove the carbohydrate more completely. Cammidge³ states that with a large excess of water in thrice boiling there is difference in the completeness of removal of carbohydrate from different vegetables. Ten and twenty-four per cent, respectively, of the carbohydrate of the raw vegetable remained in the thrice boiled cabbage and cauliflower analyzed by Olmsted.⁴ From available data it appears that vegetables boiled once retain one-half to two-thirds of their carbohydrate, while those boiled three times generally contain less than one-third of the carbohydrate of the raw vegetable.

That the time of boiling, the size of the pieces into which the vegetables are cut, and especially the volume of boiling water used are the chief factors in the removal of carbohydrate is shown in the papers cited and also in one by Myers and Croll⁵, where evidence is presented to show that a large proportion of the carbohydrate of many vegetables and fruits occurs in a soluble form; this is emphasized as another important factor in carbohydrate removal by boiling vegetables. These

¹O'Reilly, L. and McCabe, E. H.: The Available Carbohydrate in Thrice Boiled Vegetables, *Jour. Biol. Chem.*, 46, 83 (1921).

²Wardall, R. A.: Vegetable Foods for the Diabetic, *Jour. Amer. Med. Assn.* 69, 1859 (1917).

³Cammidge, P. J.: Boiled Vegetables for the Use of Diabetics, *The Lancet*, 2, 1192 (1919).

⁴Olmsted, W. H.: Availability of Carbohydrate in Certain Vegetables, *Jour. Biol. Chem.*, 41, 45 (1920).

⁵Myers V. C. and Croll H. M.: The Determination of Carbohydrates in Vegetable Foods, *Jour. Biol. Chem.*, 46, 537 (1921).

facts should increase the use of such vegetables in diabetic diets, since they are a pleasing addition to monotonous diets and do not necessitate overstepping the limits set for the carbohydrate intake.

Standards of Child Nutrition. When children live in surroundings nearly approaching the ideal, they grow and develop at a faster rate than those less fortunate. Benedict and Talbot¹ have recently weighed and measured 1209 boys and girls of several of the private schools in the neighborhood of Boston and eastern Massachusetts where surroundings, food, and medical care are practically unsurpassed. They have compared the height and weight of these children with that of other children, studied by them also, living in less favorable surroundings and also with the measurements of Holt, Wood, and others. Holt's measurements were made on boys of a public school in a better-class neighborhood of New York City, and Wood's on pupils of the Horace Mann school, connected with Columbia University. Wood's tables of height and weight measurements are included in so much of the material sent out by the different organizations dealing with the problem of the underweight school child, that his averages are perhaps more used than any others in judging the state of a child's nutrition.

The children of the private schools are taller and heavier than Wood's public school children. The private school boys are distinctly larger individuals both in height and in weight than the "average" boy of the same age, and the authors believe that everything points to the desirability of this more rapid growth. Raising our standards of child nutrition from the "average" to the "ideal" plane will increase still more the amount of recognized undernutrition in our country.

What the food allowance must be to provide for such a rapid growth in normal, active children can only be estimated. A proper determination of the total food needs of children can probably never be completely and satisfactorily made from gaseous metabolism experiments on account of the necessary, extra demands of growth. That our standard for food allowances for children has tended to be low, however, seems undoubtedly true. Benedict and Talbot give as an approximate figure the calorie output of boys as 75 per cent above the basal metabolism for their time spent in the school room. This would bring the calorie need of a ten year old boy to about 2000 without allowing for the vigorous exercise of playing, which would raise it still higher. The final state-

¹ Benedict, F. G., and Talbot, F. B.: *Metabolism and Growth from Birth to Puberty*. Carnegie Institute of Washington, Pub. No. 302 (1921).

ment of Benedict and Talbot is very pertinent: "One could infer, therefore, from these observations, that, aside from the possibilities of digestive derangements, it would be impossible to supply the growing child with an excessive amount of food. Every effort may legitimately be expended to secure a maximum skeletal growth and the development of children above so-called average weight. We believe that our investigation shows clearly that the average weight for children is distinctly below the ideal or physiologically desirable weight."

THE OPEN FORUM

Helping the Housewife. The following extracts from Mrs. Abel's report as state chairman of home economics for the General Federation of Women's Clubs of Maryland, may offer valuable suggestions as to ways in which clubs and home economics associations may help the women of their communities.

1. A regular weekly class has been held in Baltimore on Monday evenings, led by teachers from the staff of the Extension Division of the University of Maryland, on such subjects as Household Equipment, the Buying of Food, the Family Budget.

2. Through the generous cooperation of the University of Maryland a complete list of home economics activities under the title "What is going on in home economics in Baltimore" was mailed to a long list of women presumably interested in the subject. Doubtless the same cooperation could be secured another year in spreading the information as to courses of instruction offered in the evening classes in the high schools and given by the Y. W. C. A., the Red Cross, and other organizations.

3. It has been your chairman's privilege to assist by advice in the development of a service which has been greatly needed. The housewife has a right to disinterested expert advice in the buying of her household equipment and in the best methods of running her house as much as the farmer has a right to have fertilizers analyzed or seeds tested.

Dr. Lelia Powers of the Y.W.C.A. has been allowed by her Board of Managers to carry on an exhibit, on Saturday mornings, of household appliances and methods, and has herself been present with her assistants to answer the questions of visitors. The object has been to show the principles on which various kinds of equipment should be constructed (e.g. refrigerators, washing machines). Much attention has been given to laundry methods, labor saving devices, and healthful postures in doing housework. It is hoped that this valuable service may be continued.

Developing Unselfishness in the Clothing Class.¹ We have often heard our clothing work criticized on the ground that it is apt to develop selfishness. The girls make garments for themselves only, as a rule, study styles which are suitable to their own figure and coloring, and are seldom asked to do anything for others. Making curtains and other furnishings for the school needs is a step in the right direction, and since the war many other opportunities have arisen which serve as a means of using the clothing class to develop good citizens who are trained to think of the needs of others.

The clothing classes in our high school have made rompers for the day nursery, curtains for the girls' reserve room of the Y. W. C. A., and are now completing another project which has offered abundant training in unselfishness. The project has been so "alive" and varied that the unselfish interest aroused has been more or less spontaneous, and has gathered momentum of itself as the project has progressed. The class is furnishing the greater part of the clothing for spring and summer for a little orphan girl in Carson College, a home for orphan girls, Flourtown, Pennsylvania.

The girls in Carson College are allowed a certain amount for clothing each month, depending upon their age, and Alice, eleven years old, is allowed \$8.00 per month. We were given a list of the clothes she had on hand, and also a list of the clothes she would need for spring and summer. Thus we had a real budget project to work upon with \$48 (six months allowance) as our limit. This \$48 had to include some things, of course, which we could not make for her, such as shoes and hose, but they had to be considered. As the first step in the project, each girl handed in a budget, apportioning the money to the best of her ability. We talked over these budgets as a class, and decided upon a fair estimate for each article. This necessitated practice in calculating the amount of material needed for the different garments, and a knowledge of the current prices for standard materials. The girls then read over the list of the clothing that Alice would need, and wrote their names opposite the garments they wished to make for her. Before any purchases were made, the girls brought samples of materials to class, and each garment was discussed and the samples criticized by the class as a whole in regard to color, durability, and appropriateness. The actual purchases were then made by the girls themselves. The

¹ From *Homemaking in Wisconsin: Home Economics Teachers' Exchange Ideas*, compiled by Helen Goodspeed.

cash slips were all kept and are to be turned in to the school where Alice lives, after which the money will be refunded. Very grave and sometimes almost heated consultations have been held over certain garments, as, for instance, when the makers of the spring cape, the Sunday dress, and the spring hat, were coming to an agreement in regard to the colors for these garments which would be worn at the same time.

The project has also been of benefit to the girls, in that it necessitated an understanding of children's clothes, both in regard to the type of garments worn by children of this age, and also in regard to the hygiene of clothing, the type of materials best suited for children's clothing, and other points.

We have not intended to introduce any new problems in construction as such, but have laid stress upon the budget problem, the study of children's clothes, and the social aspect of the project. Alice is to write us soon, and we are expecting pictures of her when she receives her new wardrobe, and of course this all tends to interest us more. We are quite sure that the garments will fit her because we have a list of all her measurements, and have altered the patterns accordingly. We have also borrowed a little girl of Alice's size and tried the garments on her from time to time.

This project has led to a real "social consciousness" on the part of the class. So many offers of out-grown clothing have come from the class that we have adopted children here in Madison, whom we are helping from time to time.

HELEN COMSTOCK,
Instructor, Wisconsin High School.

We keep material on hand from the associated charities. This has helped to solve the problem of furnishing work for the girl who has completed the assigned problem before the others or for some reason is not supplied with the necessary material. As the material furnished consists of partly worn garments to be made over, as well as new material, the problem furnishes ideas in economy. Some of the articles made are: rompers from men's partly worn shirts; blouses and bloomers from new and old material; small pieced baby blankets; plain dresses and aprons.

MILDRED ALEXANDER,
East High School, Green Bay.

BOOKS AND LITERATURE

Vitamines—Essential food factors. By BENJAMIN HARROW, PH.D. New York: E. P. Dutton and Co., pp. 219, 1921. \$2.50.

Writing in a simple and discursive style Dr. Harrow has brought together most of the general facts of nutrition, particularly those relating to vitamins, into a book for the "popular" reader. The material is presented in a manner easy to follow and at the same time subject matter which might be assumed to be too technical for the average reader is not glossed over but is brought out by analogy or pains-taking explanation. Likewise, the use of curves so much in use in presenting the results of vitamin studies is adopted through the simple expedient of explaining the preparation of a curve. In introducing new material Dr. Harrow has incorporated considerable historical data which is not only instructive but helps to develop interest in the subject.

As a background for the discussion of vitamins the reader is instructed with regard to food-stuffs and their uses in the body, including a discussion of the relative value of proteins from different sources. Following this material comes a discussion of vitamins, proof of their existence, their occurrence, and relations to specific diseases with which they are associated. In the appendix is a collection of references for more extended reading.

In his discussion of pellagra Dr. Harrow states that this disease results from a deficient diet, *per se*. This definite attitude is unfortunate, for not all of the evidence is in favor of a dietary deficiency, in the most general sense of the word, as the fundamental cause of the disease. The infection theory has not entirely been disproved. On the other hand, all who have studied the problem admit that a deficient diet may have an important part in devel-

oping a predisposition to the disease and that an adequate diet is an important factor in insurance against the disease and in bringing about recovery.

Among those who believe that pellagra is the result of an agent other than a food deficiency, some have worked in the same districts as the investigators cited by Dr. Harrow as champions of the dietary deficiency theory. The Thompson Pellagra Commission, working in part in Spartanburg County, S. C., holds that a living organism of unidentified nature appears to be the specific cause of the disease. (For a summary of their reports see MacNeal, *Amer. Jour. Med. Sci.*, 1921, clxi, 469.) Enright (*Lancet*, 1920, cxlviii, 998) has described an outbreak of pellagra in a camp of German prisoners in Egypt in which the diet was excellent. It was this group of prisoners which was cited by the British Committee of Inquiry, and quoted by Dr. Harrow, as being adequately fed and having few cases of pellagra in contrast with the Turkish prisoners, whose diet had been inadequate and had developed many cases of pellagra. Enright does not advance a specific cause for the outbreak but does hold that a food deficiency was not the only factor involved. In the light of such evidence it is only right that we should retain an open mind with regard to the cause of pellagra.

While the book is not essentially a text, or reference book it should find use as collateral reading in courses on nutrition, such as in normal schools or in colleges where the previous training of the student is not sufficient for the use of the more detailed scientific discussions of nutrition. As a popular treatise on nutrition, for which the book was intended, it is excellent.

PAUL E. HOWE,
Rockefeller Institute for Medical Research.

Household Arts for Home and School. By ANNA M. COOLEY AND WILHELMINA H. SPOHR. New York: The Macmillan Co., Vols. I and II, 1920.

Much has been written during the past few years on the project method of teaching, but few text books have been produced which exemplify that method. Among those few, however, is this book which is designed for use in the home as well as in the elementary and junior high schools. It is written in narrative form, the story being the history of events in Sunnyside Apartment at the Ellen H. Richards School. This apartment, in which two of the home economics teachers lived, was used as a practice house for the girls studying household arts.

Volume I tells what the girls learned about the family budget, home furnishing, the care of the baby, textiles, and the selection of clothing. The furnishing of the apartment offered problems for the sewing class. The acquaintance with "Mrs. Edwards" who lived in the same building, gave the students an opportunity to learn something concerning the care and the clothing of the baby.

Volume II deals with the care of the home; selection, cooking, and serving of food; laundering; and hospitality. A food sale for the Fair and the preparation of breakfast, dinner, and supper were projects around which much of this work was organized.

In the lessons on cookery, principles controlling processes have been developed, but little or no attempt has been made to teach fundamental proportions. While the handing out of recipes for each specific occasion is a quicker method, one questions whether it does all that it should to make the individual a self reliant worker. Is it not possible to do more to emancipate her from too great dependence on the cook book or recipe file?

Unquestionably the work as presented will enlist the interest of the young girl, because each lesson develops as a result of her own every day need or that of some one in whom she is interested.

The practicality of the plan presented in the book will no doubt be questioned by

many on the grounds that its success depends to a great degree on the practice house and the "model" Edwards family, neither of which is apt to be available in the average community.

The book is particularly strong in that it gives a breadth of vision concerning the responsibilities of the homemaker, and shows the possibility of a close relationship between the home and school. Neither a home economics teacher nor a student, after reading this book, could possibly be satisfied with courses in mere cooking and sewing. While one feels at times that it is a bit visionary, it must be remembered that the authors have suggested its use in connection with the plans and outlines of the individual teacher and, if taken in that spirit, it cannot fail to be most inspirational and helpful to both teacher and pupils.

MAUDE MILLER,
University of Minn.

Vocational Education. Compiled by EMILY ROBISON and JULIA JOHNSEN. New York: H. W. Wilson Co., 1921, pp. 359. \$2.25.

This book is a second and enlarged edition of an earlier collection of magazine articles and essays in the field of vocational education. An entire revision of the bibliography has been made, and a number of new selections have been added to make the book more nearly complete and up-to-date.

The selection of materials is wise, giving expression to many contrary points of view and covering all the main divisions of the field. The book needs an index, however; as it is, one would have difficulty in locating references on special topics. The collection contains no comprehensive and adequate discussion of job analysis, technique of teaching, or preparation of teachers, but such lacks are not surprising in the field of vocational education.

One cannot read far without developing more respect than ever for the pioneers who began their good work of interesting educational people in the need for vocational education so many years before actual accomplishments were possible. Many of

the articles were written before the Smith-Hughes Bill was passed or the Federal Board for Vocational Education established. The frequent mention of Germany in some of the articles is interesting now and shows us how far we have gone toward the development of a plan which can be called truly American.

The book contains material which should be read by every one interested in the modern problems of American education, yet much more needs to be said and done before we can come to anything like an understanding of the aims and methods of vocational education. The study and discussion of the many viewpoints presented will lead us into more light on this difficult and pressing problem.

The section on household arts is suggestive for experienced workers in the field, but not comprehensive enough to give a complete view of the problems. The material on industrial education is far more comprehensive. The bibliography is extensive and well classified and in some cases annotated.

JOHN M. BREWER,
Harvard University.

The Social Case History: Its Construction and Content. By ADA ELIOT SHEFFIELD, New York: Russel Sage Foundation, 1920, pp. 227. \$1.00.

It is no surprise to find a beauty of order set forth in *The Social Case History* which distinguishes Mrs. Sheffield's work in her own field. Her keen valuation of detail, in which a less discerning eye would fail to read significance to large issues, characterizes her study of family histories.

The home economics worker will find in this little volume a particular value which the title might not suggest.

The home economics specialist in making her contribution to family cohesion needs to develop a like critical attitude toward all the mass of details which her intimate work with the daily life of the family brings to her notice.

In order to see their meaning, to identify them as significant, to interpret their relation to family solidarity she needs to chart

out her thinking so that she may gain an insight into the family problem and relate it to general social welfare. Mrs. Sheffield offers a challenge to the worker who does not think through a situation, and, by her orderly array of illustrations, suggests the richness to be derived from discerning values in the commonplace. The author defines the purpose of a modern case history as a body of personal information conserved with a view to the three ends of social case work: (1) The immediate purpose of effective treatment of individual clients; (2) The ultimate purpose of general social betterment; and (3) The incidental purpose of establishing the case worker herself in critical thinking.

Substitute home economics worker for case worker and it will be recognized that discussion of these ends is of service to the home economics field if the practice of the method is not of immediate use.

Acquaintance with Mrs. Sheffield's book will insure its welcome to all whose particular concern is the promotion of family cohesion.

HARRIET TOWNSEND,
Teachers College, Columbia University.

Linen: From the Field to the Finished Product. By ALFRED S. MOORE. London and New York: Sir Isaac Pitman and Sons, Ltd., 1914, pp. 130. \$1.00.

This little book is one of Pitman's Common Commodities and Industries Series, which includes several books that may be of interest to teachers of home economics for reference purposes. Among them are books on Tea, Coffee, Sugar, Wheat and Its Products, Soap, Furniture, Carpets, Cotton, Silk, Wool, Leather, Knitted Fabrics, and Cordage Fibers.

In *Linen* the author has given an accurate and complete, but at the same time popular and interesting, description of linen manufacturing in all its phases. His experience of a lifetime spent in the midst of the linen industry of Ireland has enabled him to throw in many side lights in his account, and the picture he sketches gives the feeling of reality and has a human interest.

In the introductory chapter the history of linen is traced, going back to the prehistoric period of ancient Egypt and coming down to the beginnings of linen making in Ireland when some of the Huguenots, exiled from their native France, took with them their textile skill and started the industry which in time came to be of such importance in Ireland. The reader is impressed with the magnitude of the linen industry as it was before the war, especially the place it occupied in Ulster and the north of Ireland.

Following the historical discussion is a brief account of the foundation and growth of the Irish linen trade. There are accounts of the old Irish Linen Board, of the linen riots of the eighteenth century, and of the old linen markets. The story of the English and Scotch trade with their system of boun-

ties is told, and finally the introduction of the factory system and the trade conditions during the two or three years preceding the war are described.

Following that portion of the book in which the production and handling of the raw material and the manufacturing processes are considered, the final chapters discuss varieties of linen, methods of grading and testing linen, and marketing problems. In the last two chapters the conditions of work, trade unions, and wages are given some consideration.

This book is clearly organized, has good illustrations, a table of contents and an index. It will commend itself to the teacher of textiles, as good reference material.

MARION WELLER,
University of Minnesota.

UNITED STATES DEPARTMENT OF AGRICULTURE BULLETINS REPORTING WORK OF THE OFFICE OF HOME ECONOMICS¹

Digestibility of Some Animal Fats. By C. F. Langworthy and A. D. Holmes. U. S. Dept. Agr. Bul. 310 (1915). (Lard, beef fat, mutton fat, butter.) 5 cents.

Potatoes, Sweet Potatoes, and Other Starchy Roots as Food. By C. F. Langworthy. U. S. Dept. Agr. Bul. 468 (1917). (A summary and discussion.) Free.

Fats and Their Economical Use in the Home. By A. D. Holmes and H. L. Lang. U. S. Dept. Agr. Bul. 469 (1916). (A summary and discussion.) 5 cents.

Studies on the Digestibility of the Grain Sorghums. By C. F. Langworthy and A. D. Holmes. U. S. Dept. Agr. Bul. 470 (1916). (Corn meal, feterita, kafir, kaoliang, milo, wheat.) 5 cent.

Turnips, Beets and Other Succulent Roots, and Their Use as Food. By C. F. Langworthy. U. S. Dept. Agr. Bul. 503 (1917). (A summary and discussion.) Free.

Digestibility of Some Vegetable Fats. By C. F. Langworthy and A. D. Holmes. U. S. Dept. Agr. Bul. 505 (1917). (Cocoa butter, cocoanut oil, cottonseed oil, olive oil, peanut oil, sesame oil.) 5 cents.

Studies on the Digestibility of Some Animal Fats. By C. F. Langworthy and A. D. Holmes. U. S. Dept. Agr. Bul. 507 (1917). (Brisket fat, chicken fat, cream, egg-yolk fat, fish fat, goose fat.) 5 cents.

Experiments in the Determination of the Digestibility of Millets. By C. F. Langworthy and A. D. Holmes. U. S. Dept. Agr. Bul. 525 (1917). (Common millet, proso.) Free.

The Digestibility of the Dasheen. By C. F. Langworthy and A. D. Holmes. U. S. Dept. Agr. Bul. 612 (1917). 5 cents.

Digestibility of Certain Miscellaneous Animal Fats. By A. D. Holmes. U. S. Dept. Agr. Bul. 613 (1919). (Goat's butter, hard-palate fat, horse fat, kid fat, oleo oil, oleo stearin, ox-marrow fat, ox-tail fat, turtle fat.) Free.

¹ In most cases the edition was small and the Department's quota is exhausted. However, the papers can be purchased from the Superintendent of Documents, Government Printing Office, Washington, D. C. for nominal sums as indicated.

Studies on the Digestibility of Some Nut Oils. By A. D. Holmes. U. S. Dept. Agr. Bul. 630 (1918). (Almond oil, black-walnut oil, Brazil-nut oil, butternut oil, English-walnut oil, hickory-nut oil, pecan oil.) 5 cents.

Experiments on the Digestibility of Fish. By A. D. Holmes. U. S. Dept. Agr. Bul. 649 (1918). (Boston mackerel, butterfish, grayfish, salmon.) Free.

Digestibility of Some Seed Oils. By A. D. Holmes. U. S. Dept. Agr. Bul. 687 (1918). (Corn oil, soy-bean oil, sunflower-seed oil, Japanese mustard-seed oil, rapeseed oil and charlock oil.) 5 cents.

Digestibility of Protein Supplied by Soy-Bean and Peanut Press-Cake Flours. By A. D. Holmes. U. S. Dept. Agr. Bul. 717 (1918). 5 cents.

Experiments on the Digestibility of Wheat Bran in a Diet Without Wheat Flour. By A. D. Holmes. U. S. Dept. Agr. Bul. 751 (1919). (Fine wheat bran, unground wheat bran.) Free.

Digestibility of Some By-Product Oils. By A. D. Holmes. U. S. Dept. Agr. Bul. 781 (1919). (Apricot-kernel oil, cherry-kernel oil, melon-seed oil, peach-kernel oil, pumpkin-seed oil, tomato-seed oil.) Free.

LIST OF ARTICLES PUBLISHED OUTSIDE THE DEPARTMENT

1917 to date

(Not available for distribution. May be consulted for references in libraries)

"The American Papaw and Its Food Value." By C. F. Langworthy. *Jour. Home Econ.*, 9 (1917), No. 11, pp. 505-511.

"Guide to the Nation's Dietary Needs." By H. W. Atwater. *Annals Amer. Acad. Pol. and Soc. Sci.*, Nov. 1917, Pub. No. 1154.

"Changing a Peace Time Ration for War Time." By C. L. Hunt. *Jour. Home Econ.*, 10 (1918), No. 8, pp. 371-374.

"How Agricultural Publications Can Be Obtained." By C. L. Hunt. *Gen. Fed. Mag.*, 17 (1918), No. 7, pp. 30-31.

"How Much Food Does It Take to Supply Us with the Calcium We Need." By M. C. Denton. *Jour. Home Econ.*, 10 (1918), No. 4, pp. 168-170.

"Kitchen Tests for Pectin in Jelly-Making." *Jour. Home Econ.*, 10 (1918), No. 11, pp. 520-521.

"Quick Method of Calculating Food Values." By C. L. Hunt. *Jour. Home Econ.*, 10 (1918), No. 5, pp. 212-218.

"Teaching Food Values." By C. F. Langworthy. *Jour. Home Econ.*, 10 (1918) No. 7, pp. 295-302.

"What Temperature is Reached Inside the Jar During Home Canning?" By M. C. Denton. *Jour. Home Econ.*, 10 (1918), No. 12, pp. 548-552.

"Woman's Committee Survey of Agencies for the Sale of Cooked Food." By H. W. Atwater. *Jour. Home Econ.*, 10 (1918), No. 9, pp. 419-424.

"Centigrade Scale Compared with Fahrenheit." *Jour. Home Econ.*, 11 (1919), No. 3, pp. 123, 124.

"Changes in Food Value of Vegetables Due to Cooking." By M. C. Denton. *Jour. Home Econ.*, 11 (1919), No. 4, pp. 143-154 and No. 5, pp. 200-209.

"Effect of Milling on the Digestibility of Graham Flour." By C. F. Langworthy and H. J. Deuel, Jr. *Proc. Nat. Acad. Sci.*, 5 (1919), No. 11, pp. 514-517.

"Methods to be Used in the Study of Gas Consumption of the Ordinary Household Range." *Jour. Home Econ.*, 11 (1919), No. 4, pp. 158-162.

"Office of Home Economics. Some Results of Recent Work." By C. F. Langworthy. *Jour. Home Econ.*, 11 (1918), No. 1, pp. 13-20.

"Office of Home Economics: Some Results of the Work Carried on During the Fiscal Year, 1918-1919." By C. F. Langworthy. *Jour. Home Econ.*, 11 (1919), No. 12, pp. 519-532.

"What is Experimental Cookery?" By M. C. Denton. *Jour. Home Econ.*, 11 (1919), No. 3, pp. 119-123.

"Absorption of Fat by Fried Batters and Doughs, and Causes of Variation." By M. C. Denton, E. Wengel, and L. Pritchett. *Jour. Home Econ.*, 12 (1920), No. 3, pp. 111-127.

"Digestibility of Certain Miscellaneous Vegetable Fats." By A. D. Holmes and H. J. Deuel, Jr. *Jour. Biol. Chem.*, 41 (1920), No. 2, pp. 227-235.

"Digestibility of Raw Corn Starch." By C. F. Langworthy and H. J. Deuel, Jr. *Proc. Amer. Soc. Biol. Chem., Jour. Biol. Chem.* 41 (1920), No. 3, p. L.

"Digestibility of Raw Corn, Potato, and Wheat Starches." By C. F. Langworthy and H. J. Deuel, Jr. *Jour. Biol. Chem.*, 42 (1920), No. 1, pp. 27-40.

"Digestibility of Raw Rice Starch." By C. F. Langworthy and H. J. Deuel, Jr. *Res. Commun. et Demons., Cong. Physiol.*, Paris, July 16-20 (1920), pp. [185-186].

"Digestibility of Steam Cooked Soy Beans and Peanuts." By A. D. Holmes. *Jour. Amer. Med. Assoc.*, 74 (1920), No. 12, pp. 728-800.

"Energy Elimination in Gaseous Exchange in Bananas, Pineapples, and Apples." By C. F. Langworthy, R. D. Milner, and H. G. Barott. *Proc. Amer. Soc. Biol. Chem., Jour. Biol. Chem.*, 41 (1920), No. 3, p. LXIX.

"Energy Expenditure in Household Tasks." By C. F. Langworthy and H. G. Barott. *Amer. Jour. Physiol.*, 52 (1920), No. 2, pp. 406-408.

"General Rules for Choosing Oven Temperatures." By M. C. Denton. *Jour. Home Econ.*, 12 (1920), No. 12, pp. 541-543.

"Possibilities in Home Economics Work." By M. F. Snyder. *Jour. Home Econ.*, 12 (1920), No. 4, pp. 166-168.

[Summary of Respiration Calorimeter Experiments on the Specific Heat and Energy Output of Celery and Eggs in Storage.] In Office of Home Economics. By C. F. Langworthy. Rpt. Dir. States Relations Service, Dept. Agr., (1920), pp. 43, 44.

"Utilization of Kid, Rabbit, Horse, and Seal Meats as Food." By A. D. Holmes and H. J. Deuel, Jr. *Jour. Indus. and Engin. Chem.*, 12 (1920), No. 10, Pp. 1-7.

"What Constitutes Research in Home Economics?" By M. C. Denton. *Jour. Home Econ.*, 12 (1920), No. 2, pp. 58-63.

"Botulism and Home Canning." By M. C. Denton. *Jour. Home Econ.*, 13 (1921), No. 6, pp. 261-266.

"Digestibility of Some Hydrogenated Oils." By A. D. Holmes and H. J. Deuel, Jr. *Amer. Jour. Phys.*, 54 (1921), No. 3, pp. 479-488.

"Effect of a Variation in Milling on the Digestibility of Wheat Flours." By C. F. Langworthy and A. D. Holmes. *Proc. Nat. Acad. Sci.* (In Press).

"Experiments in the Making of Doughnuts of Low Fat Absorption." By M. C. Denton and L. B. Pritchett. *Jour. Home Econ.*, 13 (1921), No. 6, pp. 255-260.

"Gastric Response to Foods." (Abstract). By M. C. Denton. *Jour. Home Econ.*, 13 (1921), No. 1, pp. 26-31 and No. 2, pp. 58-65.

"Heat Elimination and Gaseous Exchange in Celery and Eggs During Storage." By C. F. Langworthy and H. G. Barott. *Proc. Amer. Soc. Biol. Chem., Jour. Biol. Chem.*, 46 (1921), No. 1, p. XLIX-L.

NEWS FROM THE FIELD

FOURTH ANNUAL CONVENTION OF THE AMERICAN DIETETIC ASSOCIATION

LA SALLE HOTEL, CHICAGO, ILL., OCTOBER 24-26

Monday Morning, 9:30 a.m.

Administrative Section, Mary Lindsley, chairman, presiding

Discussion of Questionnaire arranged by Administrative Section, Mary A. Lindsley, Manager

Grace Dodge Hotel, Washington

Equipment, George A. Smith, Chicago Range Co.

Some Administrative Problems, Agnes Gleason, Manager Parkway Tea House

Salesmanship, Mildred Robinson, Charge of Salesmanship, Chicago Public Schools

Monday Afternoon, 2:00 p.m.

Social Service Section, Lucy Gillett, chairman, presiding

To What Extent shall Racial Customs Enter into any Americanization Scheme? S. P.

Breckinridge, Dean of Women, University of Chicago

Dietary Customs of Various Nationalities:

Syrians and Roumanians, Bessie Lee, Visiting Housekeeper Assn., Detroit

Jewish, Mrs. Mary Schapiro, United Hebrew Charities, N. Y. City

Negroes and Mountain Whites, Fairfax Proudfit, University of Tenn., Out-patient

Medical Dept., Memphis, Tenn.

Italians, Reba Reed, Assn. for Improving the Condition of the Poor, N. Y. City

Monday Evening, Dinner Meeting, 6:30 p.m.

President's Address

Professional Spirit, Harriet Vittum, Northwestern University Settlement House

Internal Hygiene and Its Relation to Mood, Madison E. Bentley, Prof. of Psychology,
University of Ill.

Training for Industrial Leadership, A. E. Morgan, President of Antioch College

Tuesday Morning, 9:30 a.m.

Education Section, Dr. Ruth Wheeler, chairman, presiding

What Nurses Need to Know about Food and Dietetics

Mary MacMillan, Supt. Presbyterian Hospital, Chicago, Ill.

Mrs. Higgins, Nursing Service, U. S. Navy Hospital

Experience Meeting, Strictly 2 Minute Speeches by 10 Dietitians

Hospital Training of Dietitians:

In Rochester, Minn., Mary Foley

In Peter Bent Brigham, Boston, Octavia Hall

In Johns Hopkins, Baltimore, Mrs. Agnes O'Dea

Tuesday Afternoon, 2:00 p.m.

Round Table Conferences:

I. Education, Dr. Wheeler, presiding

1. Reports by Sub-committees

a. A course in Dietetics for Nurses

b. Preliminary Course for Dietitians in Universities, Colleges, and Technical Schools

c. Hospital and Medical School Training for Dietitians

II. Dieto-Therapy, Miss Eckman, presiding

1. Activities in Dieto-Therapy.—Laboratory, Research, and Clinical Application
2. Educational Propaganda—Fields of Greatest Need

III. Social Service, Miss Gillett, presiding

1. Cooperation in the Public Health Movement from a Medical Standpoint, Blanche Joseph, Michael Reese Hospital, Chicago, Ill.
2. From a Nursing Standpoint, Mary Laird, Director Public Health Nursing Association, Rochester, N. Y.
3. From the Social Worker's Standpoint, Florence Nesbit, Chicago United Charities

IV. Administration, Miss Lindsley, presiding

1. Discussion on Equipment, labor, supplies, and food, led by division chairmen
2. Placement of Equipment. Margaret Proctor, Equipment Expert, Economic Bureau, National Board, Y. W. C. A.

Tuesday Evening, 8:00 p.m.

Emma Gunther, Chairman Program Committee, presiding

The Sphere of the Dietitian, Dr. H. P. Howard, Prof. of Internal Medicine, State University of Iowa

The Selection of Personnel, Hugh Fullerton, The H. Black Co., Cleveland, Ohio

Food Poisoning, John Street, National Canners Association

Wednesday Morning, 9:30 a.m.

Fields for the Dietitian—15 Minute Talks

Cafeteria and Institutional Managers, Blanche Geary, National Board, Y. W. C. A.

The Hospital, Marion Peterson, Swedish Hospital

The College Hall, Mabel Little

The National Federation of Business and Professional Women's Clubs, Lena Phillips, Executive Secretary

Business Meeting

Wednesday Afternoon, 2:00 p.m.

Dieto-Therapy Section, Rena Eckman, chairman, presiding

1. The Dietary Needs of a Children's Hospital, Dr. Amy L. Daniels, Iowa Child Research Station, University of Iowa
2. The Newer Ideas on the Dietetic Management of Diabetes and their Practical Working Out in the Hospital, Dr. R. T. Woodyatt, Assistant Professor of Medicine, University of Chicago

Wednesday Evening, 8:00 p.m.

Mrs. Mary de Garmo Bryan, president, presiding

Relationship Between Diet and Nervous Conditions with its Significance in Social Problems
Dr. Sidney Kuh, Neurologist, Chicago

Systems of Follow-Up Work in Dietetics, Mrs. Gertrude Gates Mudge, Nutrition Division,
American Red Cross

Human Engineering, Robert Wolf, Consulting Engineer, New York

Hotel reservations should be made at once. Accommodations may be secured at the following rates for single rooms; double rooms are in proportion.

Hotel La Salle, \$2.50-\$7.00; Drake Hotel, \$6.00-\$8.00; Hotel Blackstone, \$5.00-\$8.00; Hotel Sherman, \$2.50-\$6.00; Hotel Alexandria, \$2.00 up; Congress Hotel, \$3.00 up; Virginia Hotel, \$3.00 up.

For information in regard to transportation rates, write to E. M. Geraghty, 801 S. Wright St., Champaign, Ill.

The Cincinnati Health Exposition, will be held in Music Hall, October 15-22, 1921, for the purpose of influencing a greater public attention toward family and community health. The exposition is the climax of a program of education combining the effects of almost every organization of every size and purpose in Greater Cincinnati. The exposition is a pioneer in a noteworthy field, and possesses a national significance. A combination of commercial and non-commercial exhibits properly constructed and operated, as it will be by the committee of business and professional men in charge of it, may serve as a model for similar enterprises throughout the country.

The departments of the city government will be well represented in this educational display, which will serve to mark Cincinnati's great progress in health activities during the past twenty-five years.

The Ellen Richards Research Prize of \$1000, offered biennially by the Association of American College Women for Promoting Laboratory Research by Women (now the Association to Aid Scientific Research by Women) was awarded Dr. Eleanor Carothers of Philadelphia at the annual meeting of the association at Goucher College.

Dr. Eleanor Carothers received her bachelor's degree from the University of Kansas and her doctor's degree from the University of Pennsylvania. She is at present engaged in research work at the University of Pennsylvania on the genetical behavior of heteromorphic homologous chromosomes of *Circotettix* (orthoptera).

The prize will be awarded again in 1922. Theses by women, based on independent laboratory research, are eligible for competition and must reach the Committee before February 25, 1922. For circulars of information and application blank, apply to Dr. Lilian Welsh, Goucher College, Baltimore.

Florida State College For Women. A new building has been completed and will be used for the home economics classes this fall.

University of Washington. Announcement has been made of the establishment of an annual graduate fellowship of \$600 in textile research at the University of Washington. It is to be known as the Bon Marché Fellowship, as it is a gift of that store, the largest department store in Seattle. The holder will devote a few hours each week to analyses of fabrics for the store with time for sufficient research work to gain the master's degree in the eleven months covered by the fellowship.

The Personal Service Department, a most important and enterprising activity of the store, is under the direction of a former member of the staff of the Home Economics Department, Frances Grant Heverlo.

Rose Fraser, University of Washington 1918, has been awarded the fellowship for 1921.

Application for the fellowship for next year may be sent to the Home Economics Department, University of Washington, Seattle.

Research Work at Teachers College. The Department of Physiological Chemistry of Teachers College has inaugurated during the Summer Session four lines of research which will be continued during the coming academic year.

As a result of the work of Professor Sherman and Dr. La Mer, an adequate, basal diet has been developed for guinea pigs lacking only in the antiscorbutic vitamin. This diet permits experiments to be developed which will measure with a fair degree of accuracy the C vitamin content of foods under varying cooking conditions. This phase of the work has been made a program of research for the department, and during the summer the work was carried on with the pressure cooker by Miss Shelow of Ohio State University.

Ever since the announcement, by Johns, of the nutritive value of peanut flour, the department has been conducting coöperative experiments in the practical development of nutritious and appetizing recipes of peanut and wheat flour products with the department of cookery. This work has

been actively advanced during the summer session and Miss Eckman has begun during the summer the study of peanut flour supplementing *vs.* supplementing with meat residue, the diets being made adequate in all other factors to determine whether such supplementing justifies the claims made for the peanut or whether, as recently announced by McCollum, there are factors in the animal tissues which are of special significance.

A third phase of work that has moved forward during the summer has been the attention to the rickets problem, with especial reference to phosphate supplementing of cereal diets. This work has embraced the investigation of the value of combined phosphates such as phytin as a preventive of rickets, and the possibilities of better cereal combinations for baby feeding. During the summer this work was carried on by Professor Taylor of the Wake Forest Medical College under the Departmental direction.

The fourth series of researches have been continuation of the study of yeast stimulation by extracts and their relation to the *B* vitamin. Mr. Cherkasi of the College of Physicians and Surgeons has had this work in charge during the summer.

University of Illinois. Harriet Barto comes to the University of Illinois as assistant professor of home economics. She has been on the staff of Teachers College, as an instructor in nutrition. Bonnie Elizabeth Scholes is taking up the work of nutrition specialist for the Extension Department, this fall.

University of Kansas. Anne D. Blitz will come to the University this fall as the first Dean of Women, this position having just been created here. During the planning of the new dormitory for women she is acting in an advisory capacity to the building committee, because of her wide knowledge of housing and the college dormitory problem.

The new college cafeteria will be opened this fall, under the direction of Anna Barnum, who was formerly at Cornell University.

She will be assisted by her sister Rebecca Barnum. For a time the cafeteria will occupy temporary quarters, but upon the completion of the Union Memorial Hall it will be given space there.

Cookery Courses for Men. Pennsylvania State College is planning to repeat this fall the courses for men which were given last spring. There is a course in buying and menu making, designed especially to meet the needs of the men who are acting as stewards for the various college clubs; and there is a class in actual cookery, where the men study elementary food principles and apply them, ending their work with a dinner for their friends. This course developed some technical skill, but in addition it gave an appreciation of the work involved in meal serving. After the dinner one man said, "Six men, five hours each—thirty hours, one dinner—and *one* woman does it!"

NOTES

Mrs. Alma Guillet will be at Mechanics Institute this fall teaching homemaking.

Beattie Pleasants will have charge of the practice house at Mechanics Institute.

Jessie Winchell has gone to the University of Vermont to have supervision of teacher training work.

Mabel Little, who has been connected with Marshall Field's in Chicago, has gone to the University of Wisconsin as director of halls and residence.

Rosa Briggs has gone to Drexel Institute to take charge of the cafeteria and to teach institutional administration.

Elsie Kirk has gone to the State Normal School at Towson, Md., as director of halls and residence.

Frances Dunning will be director of food service and instructor in institutional administration at the University of Nebraska this year.

Emma Winslow will spend this winter at the University of London, doing special work in sociology and economics. Before her return she will visit the continent, where she will study the work of various social agencies.

THE Journal of Home Economics

For those interested in Homemaking, Institution Management,
and Educational Work in Home Economics

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CATHERINE J. MAC KAY

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NOVEMBER, 1921

No. 11

VISUALIZING YOUR FINANCIAL TREND

JOHN BOYNTON KAISER

Public Library, Tacoma, Washington

The "movie" is our most universal application of the theory of visual instruction. This theory, developed primarily as a scientific method of formal education, has had many practical applications outside the classroom; and nowhere has it been applied of late more successfully than in the world of big business. In their ready use and eager scanning of charts, diagrams, and graphs based on the facts of business and designed to indicate at a glance the exact trend of business in all its essential parts—costs, production, sales, revenues, etc.—the modern business executive and consulting efficiency engineer are applying to practical purpose the educational theory of visual instruction.

Nor is its effective application limited to big business. To the financial management of the humble household of John Doe and his wife Jane, it is equally applicable. To know at a given moment your exact financial status is important; yet vastly more important is it to know the direction of your financial trend, and the rate of this trend compared to what it was one year or two years, or, better, five years ago.

Our object is the intelligent direction and control of the finances of the household. To exercise this intelligent control we must have, to begin with, a collection of facts relative to the household finances, covering in detail, systematically and in classified form, the income and expenses of the home for a series of months and years. An accounting system that will reveal the desired information would include a record of daily expenditures, preferably classified each day, and certainly a

carefully classified record of total expenditures for the month; also a carefully classified and itemized monthly income record, and a balance sheet listing in full the assets and liabilities and the resulting "net worth" the first day of each month. There are on the market many printed account books of the "economy" and "budget" type easily adaptable to the needs of almost any household.

But while the figures may thus be revealed, one cannot easily grasp their trend and significance when presented in the mass, even though carefully classified and tabulated. For example, let us assume that the account book of John Doe, for the period indicated, presents, among other things, the following set of figures:

TABLE 1
Tabulation of expenses, 1910-1920

	FOOD	RENT	CLOTHING	FUEL	HEALTH	SAVINGS	OTHER	TOTAL
1910	\$604	\$360	\$480	\$42	\$25	\$200	\$394	\$2105
1911	595	360	465	41	25	200	400	2446
1912	635	360	475	45	100	160	400	2175
1913	651	360	500	50	30	220	375	2186
1914	667	420	515	48	80	120	1900	3750
1915	658	420	520	46	150	110	820	2724
1916	738	420	625	58	90	120	870	2921
1917	962	540	880	87	40	120	1000	3629
1918	1113	540	945	82	30	40	1100	3850
1919	1228	600	1050	86	20	30	1200	4114
1920	1326	600	1180	119	50	40	1300	4615

We have here a mass of figures, accurate and informing and valuable. Suppose we select the more important, concerning food, rent, clothing, fuel, health, and savings, and chart them (fig. 1).

What a difference! How the changes from year to year stand out! The cost of living did go up, did it not!

The detailed record of one's income provides, not only valuable information for the individual concerned, but, in these days, is an absolute necessity as a result of the income tax laws. A chart may also be prepared for the income.

This visualization of the trend of expenses and income is both interesting and illuminating, and may lead to many corrective measures. However, there is another set of figures, the visualization of which is vital to a correct understanding of the real trend of one's financial standing, and to the intelligent direction and control over the finances of the household.

These are the figures of the monthly balance sheet. Let us see what they include:

Form for monthly balance sheet

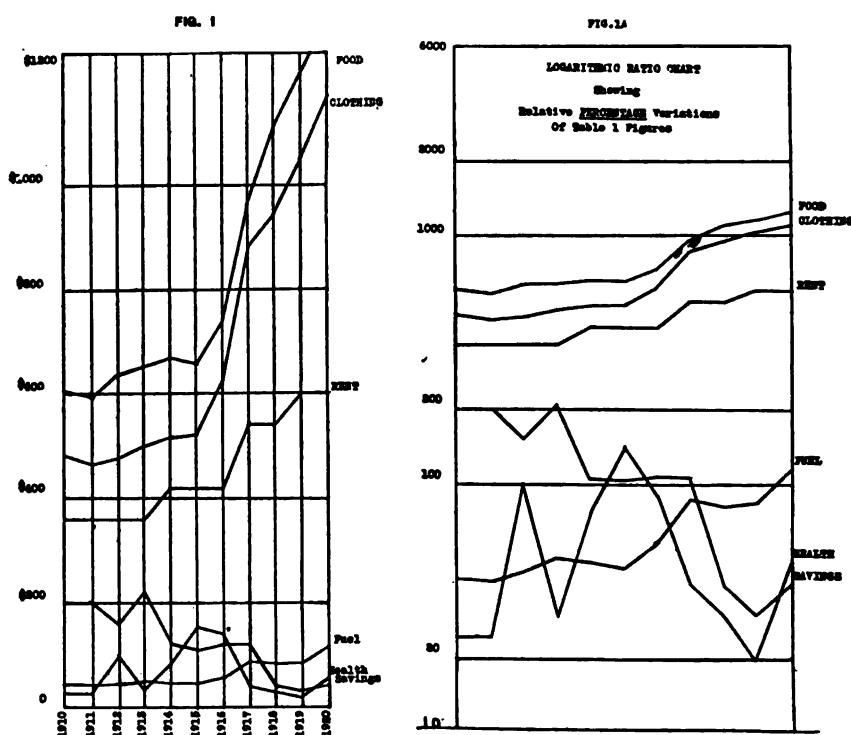
ASSETS	LIABILITIES
1. Cash: Husband.....	1. Current bills payable.....
2. Cash: Wife.....	2. Bank notes:.....
3. Checking Acct: Husband.....	3. Accrued interest.....
4. Checking Acct: Wife.....	4. Owed on real estate.....
5. Savings Acct.: Husband.....	5. Owed on auto.....
6. Savings Acct.: Wife.....	6. Mortgages.....
7. Bonds and Stocks*.....	7. Miscellaneous debt.....
8. _____	
9. Life Ins. Pol. (Cash surrender value).....	Total liabilities.....
10. Accounts receivable.....	NET WORTH
11. Accrued salary.....	1. Total assets.....
12. Accrued income from investments.....	2. Total liabilities.....
13. House furnishings.....	
14. Real estate.....	Net worth.....
15. Auto.....	
16. Other assets.....	
Total assets.....	

* If listed at face value the current market value must be given in a footnote and *vice versa*.

Although difficult to list accurately at a specified money value in a statement of assets, there should appear in connection with it a statement of the total life insurance carried, noting exactly the amounts of death benefits payable to the wife or estate in case of the husband's death from sickness, ordinary accident, or from an accident received while on a common carrier; also information concerning disability benefits under accident policies. In addition should be shown the amount of insurance carried on the home and its furnishings, the auto, and other insurable property. All this information is a factor in determining a man's financial standing and his credit rating at the bank. The graphic chart of the family's total assets, liabilities, and net worth, each month for a series of years, shows conclusively which direction you are traveling, and how far along the road you are.

There is one other important point. Thus far, the charts suggested will have shown the actual, "lump-sum" changes in *amounts* spent, or received, or on hand, on successive dates. The *comparative rates of*

progress, that is, the *percentages* of the new total as compared with the old, in two or more series of figures, have not been illustrated. For example, we should know how the rate (or percentage) of variation in income, during a given period, compares with the rate (or percentage) of variation in expenses; and we should know the rate (or percentage) of variation in the assets on successive dates, as compared with the rate (or percentage) of variation in liabilities. This requires what is termed by the mathematicians and statisticians a "ratio chart."



In the charts already discussed the lines are equidistant and the difference between \$10 and \$20 would be indicated by the same lineal distance used in indicating the like numerical difference between \$100 and \$110. Note, however, that the increase from \$10 to \$20, an increase of \$10, is an increase of 100 per cent, while the increase from \$100 to \$110, also an increase of \$10, is an increase of but 10 per cent. Hence a chart showing the *relative increases* in expense compared to *relative*

increases in income may become more important than the chart showing merely the changes in absolute or actual amounts. Such a "ratio chart" requires the use of semi-logarithmic paper. Cross-section paper ruled in this fashion is now easily available through the trade, and has been in use by engineers and others for years. One must merely know that, on semi-logarithmic cross-section paper, *equal linear distances represent equal percentage differences*, while on the other paper equal linear distances represent equal arithmetic differences. Therefore when you plot a series of numbers on semi-logarithmic paper your resulting graphs picture the percentage variations, rather than the absolute arithmetic variations between the numbers concerned. Figure 1 A shows on semi-logarithmic paper, with graphs indicating percentage variations from year to year, *the same expenses* which are charted as successive amounts in figure 1. Note the astonishing changes in the lines for fuel, health, and savings. On the ratio chart large percentage variations, even in small totals, loom up.

Your own assets, liabilities, and net worth, charted on this semi-logarithmic cross-section paper to indicate the variation from month to month over a series of years, may prove very revealing! When an increase of indebtedness of \$100 represented an increase of 100 per cent has it been offset by an increase of 100 per cent in your income? Probably not. Other factors in your situation may have made it impossible, or unnecessary.

The point should be clear, however, that it is vitally important to know, not only the status of one's finances at a given moment, not merely the direction and amount of their monthly or yearly variation, but likewise the *comparative rate of variation* between income, expense, and net worth.

Just as the application of the theory of visual instruction through the "movies" has made many immensely wealthy, perhaps the application of this same theory of visual instruction to the visualization of your own financial trend will start *you* along the same road.

THE RED CROSS NUTRITION PROGRAM IN NEW YORK CITY

AMY DRINKWATER STORER

Director of Nutrition Service, Atlantic Division

GERTRUDE GATES MUDGE

Supervisor of Nutrition, New York County Chapter

The first nutrition class in New York City under the Red Cross was organized in February, 1920, by the Bronx County Chapter, in response to the need of a group of children from soldiers' families. Six months later the Morris Avenue Health Center was opened and the nutrition classes became a part of its health activities. Recently a second center has been opened in the same community.

Almost simultaneously with the beginnings of the work in the Bronx, Brooklyn opened a nutrition center in the Red Hook district where several agencies with whom the Red Cross has coöperated closely were already carrying on other health activities.

As a result of its nutritional survey reported in the leaflet "Watch New York's Children Grow," the New York County Chapter was convinced of the desirability of organizing child health stations. Two have been operating in settlements for almost a year, one at Greenwich House, the other at Christodora House. In addition to the nutrition program conducted at these stations, the chapter finances two nutrition workers, who, in coöperation with the Nutrition Department of Teachers College, have a part in the health program in one of the public schools.

The fact that malnutrition is a many-sided problem is recognized in organizing the work at the various centers. The personnel of the child health stations includes a pediatricist, an oral hygienist, and the two nutrition workers. Arrangements are made for dental attention and the correction of physical defects. Frequent conferences correlate the work.

Recognizing that the public school is logically responsible for the health of the child, the workers seek coöperation with the principals of schools located near the centers. In general this is welcomed by them as well as by the teachers. Whole grades are weighed, measured, and checked by the nutrition workers, and tentative classes are formed. A thorough physical examination of each child is made by the physician. Conditions are recorded and remedial recommendations given. The physician's connection with the nutrition class is continuous. At the Brooklyn and Bronx centers his services are available whenever

needed. At the child health stations of New York County Chapter, as a member of the staff, he makes regular weekly visits and holds himself responsible for the physical condition of the children. Preceding the organization of the class the interest of the mother is solicited. This necessitates a home visit, often several before the confidence of the father and mother is gained. Home conditions are studied to enable the worker to understand the difficulties which surround the child. The mother is urged to attend the nutrition class, especially when the physical examination is given.

The aim of the nutrition class is not only to bring the child up to normal weight, and to help him to make health habits automatic, but at the same time to reach the mother, thus influencing the entire family group. The class meets weekly after school hours at the center, or in the school room during the day as a part of the regular curriculum. The children weigh themselves or are weighed by the nutrition worker, and their weight changes are charted. With its wavering line struggling to reach the straight, red, normal line, the chart is a means of interesting the mother and convincing her that she needs to help in this race for health. Each week a record is given to the child in the form of a tag. This shows what he weighs, what the gain or loss has been since the last meeting, and what the normal weight should be. On the other side of the tag are directions for the preparation of some food especially desirable for children. Many times home visits have revealed a row of such tags proudly adorning the walls, showing that this is a vital interest of the home.

At each meeting there is a definite period of instruction—ten to twenty minutes or half an hour. Because the children are tired from their day in school, the lesson must be comparatively short. The presentation of the subject matter follows the usual teaching methods. The children give the work of the previous meeting, while the new work follows. A strong appeal to the child's imagination must be made. A clever device, worked out in the Brooklyn center, shows an automobile race, each machine moving along the race course at the same rate its owner gains. Stories telling the message and health songs are found helpful. Illustrative material is freely used, especially the picture posters; for the child remembers what he sees much longer than what he hears, as does the mother who comes to visit the class and who, in almost all cases, is of foreign birth and can understand very little English. Toward the end of the period the weights are announced and reasons for gains or losses discussed. "I went to bed too late," or "I

did not miss cereal a single day," explains the situation, and all go home determined to follow the rules of the game more closely in the days to come.

Frequently, the lesson is carried home by means of some interesting game. For instance, at the Red Cross station at Greenwich House, the children love to play "Buying at the Store." Benches or tables are arranged around the room, each one representing a grocery store, a dairy, a vegetable stand, or a fruit stand. The children, representing mothers, are given paper money to buy the food for their families. They wander from one store to another, buying what they think they need—food being represented by brightly colored pictures pasted on heavy cardboard or by wax food models. After their supply has been chosen, it is criticized before the class. They must state how many children they have at home and why they bought certain foods. This teaches the children much about the food that is needed, and they improve in their choice each time it is played.

Occasionally, one of the nutrition classes takes the form of a real entertainment. The mothers are invited, and some health play or pantomime is given by the children. The mere planning and rehearsing for the party emphasizes the value of foods represented or habits involved. If refreshments are served they are carefully chosen, not only with the idea of pleasing, but to carry home to the mother some new food thought. These playtimes are well worth while as they bring the mothers into closer touch with the work.

The length of time it is wise to continue the weekly meetings has been difficult to determine. At first, the course, which is divided between general hygiene and food habits, seemed to require six months; but later many factors pointed to the four months' course as preferable. The child is then transferred to a monthly class.

Mothers are encouraged to attend the nutrition classes regularly, in order that they may follow the work given the children and be in sympathy with the health game. As soon as they are sufficiently interested they are given lessons in food selection. The ever present problem is to create in the mothers a desire to come to the centers regularly. The response is often unsatisfactory. This may be due to the racial factor, the Jewish mothers, for example, being more frequent visitors than the Italian. Home cares—two or three children too small to be left at home—make it hard for mothers to come to the class. There is also an increasing number of mothers who work during the day. Undoubtedly much depends upon the accessibility of the center and the atmosphere

of hospitality maintained there. Most nutrition workers agree, however, that the real difficulty lies in the natural reluctance of the mother to visit an unaccustomed place, and the unwillingness of the father to have her meet outside influences. At the present time much of the follow-up work is done in the homes; here the mother welcomes the worker as her friend and advisor. She will discuss freely her own particular problems and listen attentively as the worker goes over the reasons why Johnnie has not gained.

Within the last few months the work of the centers has been extended to reach the child of pre-school age. These groups are often made up of the smaller brothers and sisters of the children in the nutrition classes. Some of the toddlers have been passed over from the baby health stations, near the centers, to the pre-school group. Weekly clinics are arranged, but the irregularity of the mothers' attendance presents the same problem as does the nutrition class. In the pre-school group, attention is given both to normal and undernourished children, with emphasis on the latter. The prevention of malnutrition through education in health habits is comparatively easy at this time. Normal children may not be asked to come more often than once a month; others need constant supervision until they have acquired proper health habits.

Graduation parties are not infrequent. The question naturally arises, "When is a child ready to graduate?" The following explanation was given at a recent graduation: "When the physical defects are, as far as possible, corrected; when the child reaches normal weight; when health habits have become automatic, when the mother is interested in the health of her family to the extent that she is doing her utmost to maintain a healthful home." Here is the story of a graduation party taken from a report from one of the centers: "The members of the Tuesday class were highly elated because Anna Carado was to graduate. As in a real school graduation, Anna came forward to receive her diploma, which was presented by the Director of the Health Service. This gave it added importance and all were jealous of Anna's good fortune. But they were all reminded, in the talk which followed, that the same pleasure might come to every one, and it rested with each as to how soon this would be. After the short talks, Anna was presented with a yellow balloon bearing the letters, 'Good Health.' Her classmates gathered around her and sang:

'Anna Carado keep it up
Anna you're a dandy
Don't forget the milk and fruit
And leave alone the candy.

Anna Carado keep it up
Anna you're a dandy
Open your windows while you sleep
And leave alone the candy.'"

When a child graduates, however, his connection with the center is not lost. He comes back every month to be weighed, this stimulates him and his family to continue the habits already established.

At the Bronx centers, nurses and nutrition workers are working out a health program in a clearly defined section. The children in the nutrition classes are casually met in field work or are selected from homes which the nurses have visited. The nutrition worker is responsible for the mothers of these children, and each week gives a large proportion of her time to visiting the homes, referred to her by the nurses, in which there is illness or a convalescent patient. The mother at such a time is particularly responsive, and, while teaching her to prepare foods for the son who is recovering from pneumonia, the nutrition worker drives home the fact that a similar diet will promote the health of all the children. In a single morning an Italian mother was taught to cook oatmeal, poach an egg, and make a custard and a cream of potato soup. Food demonstrations in the homes are a strong feature of the work. The mother whose kitchen is used for the demonstration has the privilege of inviting her friends and neighbors. One such demonstration was attended by a group of six or seven mothers, all living on one floor, whose children and grandchildren numbered fifty-two. Organized classes in food selection are also held. The girls who have been graduated from the nutrition classes are held by means of the homemaking class which meets weekly, following the home project method. At the diagnostic clinics, held at the centers, the nutrition worker gives advice to expectant mothers and to those who bring their babies for examination.

A special activity of the New York County Chapter is the Teaching Center. Here, in a well-equipped kitchen, courses in food selection are given to all women desiring the work. One evening a week a group of social workers are availing themselves of this opportunity to secure elementary knowledge of an adequate diet and the principles of budget making. The following afternoon a class of Italian women have their lesson. This service is not confined to the Teaching Center, as many courses are given at the settlement houses or industrial plants of the city. A recent development is work with diabetic patients who are referred to the Teaching Center by physicians from a number of hospitals. The work is sponsored by a committee of the leading diabetic specialists. It consists of translating the patient's tolerance into terms of food in keeping with his means, facilities for preparation, racial peculiarities, and general living conditions. The diet is changed from time to time

as the patient improves. Not only is the diet planned in detail, but the preparation of dishes with which the patient is unfamiliar is taught. In addition, diabetic foods such as bran breads are sold at cost to those who are so situated as to be unable to prepare them in the home.

The Red Cross Nutrition Service wishes to further and supplement the nutrition work of other agencies, pending the time when the proper authorities will be able to assume responsibility for the health of all children.

REPORT OF THE COMMITTEE ON HOME INTERIORS¹

SUBMITTED BY FLORENCE E. WINCHELL, CHAIRMAN

Those who attended the meetings of the Textile Section of the American Home Economics Association at Blue Ridge, N. C., may recall an effort to discover the facts concerning the kind of home interiors shown in "the movies." A committee, appointed for the purpose, distributed printed blanks, to be used by individuals from all parts of the country in reporting the kind of interiors shown on the screens in their towns. The small number of reports returned made it impossible to draw conclusions.

Martha Cutler, Editor of the Interior Decoration Department, Butterick Publishing Company, formerly associated with both *Harper's Bazar* and *The Designer*, was interviewed and became interested in the problem. She has kept it constantly in mind in seeing moving pictures and has submitted the following report. The committee presents this as a report of progress, but with the hope that the readers of the JOURNAL may be able to reach the ears of dramatic critics and so assist in the work. Information concerning contacts so established will be appreciated.

The interiors shown in the best class of moving pictures have improved one hundred per cent in three years. The artist and interior decorator have arrived in a world where they should have reigned supreme from the beginning. We doubt whether the moving picture producer would have appreciated his need for their assistance if a very active movement had not brought them into a conspicuous position on the legitimate stage at about the same time.

It was always infinitely worse to presume to make pictures without art and beauty than to produce plays in the theater without those qualities. The stage had the spoken word to make good its claim for existence; a picture that is not beautiful, and pretends to be, has no excuse for its creation. There are sordid pictures, but they are very few; most pictures can show some beauty if the producer recognizes its importance and knows what real beauty

¹ Report of the Committee appointed in June, 1919, to see what might be done to improve the character of the home interiors shown in moving pictures.

is. He cannot be expected to know how to create it and neither can his directors; hence the appearance of the art director. All the best companies now have them, and recognize the value of their services by flashing their names on the screens.

I wish that some of the critics on the New York newspapers, and those of other large cities, could be induced to give credit to these art directors, when credit is due, and to condemn them with equal frankness when they have not done good work. They praise the producer, the director, the photographer and the scenario writer, but the art director's work, which has so much to do with the success or failure of the picture, is seldom mentioned. Cedric Gibbons, Hugo Ballin, Max Parker, Uno Nixon Hopkins and several others have done work recently that deserves high praise.

Instead of forming a larger committee to watch the pictures, I wish that some one could be found who knows at least one of the New York critics. It is perfectly legitimate to suggest to him that he take pains to notice the interior work done by the art directors of the various pictures, and mention their names when something worth while is done. The producers and exhibitors of motion pictures watch eagerly the Monday morning criticisms in the New York, Chicago, and Boston papers and base their actions upon them. If they discover that these critics praise the work of the art directors they will appreciate its importance. Those who have no art directors will hasten to engage them.

At present, in our best pictures, we are having some wonderfully beautiful interiors, almost classic in their simplicity, dignity, and harmony. The furniture is frequently so beautiful that one wonders whether it has been taken from some museum. The grouping is charming, the home atmosphere delightful, and the entire effect the best that is being produced by the decorators who are furnishing artistic homes for the modern American of unlimited means.

It is beauty that costs so much money that some of us wonder that even the largest companies can afford to keep it up. We laugh to ourselves when we see self-supporting artists and stenographers living modestly in rooms that must have cost thousands of dollars, but we excuse the lack of appropriateness, since we realize that the classic simplicity, which stands for so large an expenditure to one who knows, looks truly simple and inexpensive to those who do not know.

A few beautiful and simple cottage interiors have been shown in the pictures recently produced, but almost without exception they have been foreign: Scotch, Italian, Spanish, Dutch, and English. They have been truly charming. The cottages lived in by the American citizens who correspond to the peasant class in those countries are not beautiful.

The homes of the middle class here are sometimes beautiful, but only occasionally. The homes of the cultured middle and higher classes are usually charming. We propagandists want to make the homes of all the middle class charming. We want the motion pictures to help us instead of making our task harder. Very few plots concern themselves with the happy bourgeoisie. The middle class is supposedly not dramatic. Drama deals for the most part with extreme riches as contrasted with extreme poverty. Culture, education, good taste, and intelligence are not picture material. Hence, where is the opportunity for interiors of modest cultured homes?

Happily the owner of a modest home can receive inspiration and suggestions galore from the beautiful and artistic interiors that are now being shown. Similar effects can be obtained with simple and inexpensive furniture built on similar lines. Many people will never know the difference between a Spanish chair and a copy made over on Third Avenue. They can trim and hang their cotton voile curtains like the silk gauze ones in the picture and get an almost equally good effect. The modest artistic cottages of our dreams will unquestionably grow from these millionaire interiors.

MARTHA H. CUTLER,
Editor, Interior Decoration Department,
Butterick Publishing Co.

MY FOUR YEARS IN JACKSON COUNTY, MISSOURI, AS HOME DEMONSTRATION AGENT

Why do people think it unusual for a home demonstration agent to stay in one county for four years? Some teachers remain in one university or high school for twenty years and more, and no one comments upon the fact except to mention that "You can't kill some folks."

Why should I like to leave a county like this one? I am 8 miles from a city of three hundred thousand, where I can hear and see the best things that come to the middle west; I am a short 6-hour ride by rail from my own home; I have 500 miles of hard surface road over which to drive my Ford; and, above all, I am beginning to know my people and they to believe in me. I say "beginning to know them," advisedly, because farm women are not likely to permit any intrusion at first sight. Their confidence cannot be won in a day, and they test an agent thoroughly before they take her in. But after that, there is nothing they will not do for her. She belongs to them and no other county can get her, no matter how generous the offers may be. One committee-woman said, at a meeting concerning salary, "We want to keep you because we know you and you understand us, and we cannot waste time getting acquainted with a new agent."

Looking back to November 1, 1917, the time seems very short since war breads and conservation of all sorts started the work here. And yet it seems ages since we talked "Save for Our Boys," with lumps in our throats and moisture in our eyes. How we tried to get Over There in hospital work, but were prevented because our own men were already there, and Uncle Sam could not have the morale of his army disturbed by over-anxious sisters running about Europe in search of flying brothers! So the new work came to us here. And though the blood of ten generations of pioneers and fighting men rebelled at riding in a rattle-trap Ford over 8 Missouri counties, talking just "Food," it had to be done as a portion of the Big Piece.

Later, when the pressing need for conservation had passed, there came the preparation for the return of the boys; getting an extra room built on to the old farm house, redecorating inside and out; buying new furniture; installing water and heat and light, because our boys must surely understand how earnestly we hoped they would be content again with us. The home demonstration agent was called upon for plans and specifications and ideas and demonstrations. Then Mother and the girls had to have new clothes, bought with poultry money. But clothing was high, and eggs were not plentiful enough to supply the money; so the agent helped make over and renovate and dye old clothing; and she showed how to make the hens lay more eggs, by careful culling, feeding, and housing.

Then the Spanish influenza crept upon us and the agent nursed the sick, planned diets, taught prevention, prepared food, washed baby clothes for sick

mothers, carried hot soup from house to house, and gave instruction in simple methods of first aid. Through these ministrations she endeared herself to scores of people who may have doubted before.

After that, corrective measures for school children were undertaken through examinations carried on in the school house. For the first time the public health nurse and the demonstration agent, with simple equipment for examination met at the school houses. Hot lunches were established; communities became more friendly through growing to know one another; neighborliness was developed, and the teacher found some tangible support for her work.

Upon the advent of true citizenship for women, a new idea developed in the county, and women were elected to the school boards, bringing a surprising change in the appearance of the school house within and without, and a decided improvement in the sanitary conditions of the grounds. The Agent must be consulted in every new venture, for she had behind her not only the State College and the United States Department of Agriculture, with the Smith-Lever Act, but she had the county, state, and national organized strength of the Farm Bureau.

Practically every phase of rural life, during the past four years, has felt the influence of the home demonstration agent. Some of our universities throughout the country, recognizing the value of this work, are offering special training for this vital branch of home economics. It is to be hoped that the number offering such courses will increase. Of what use are the findings of experiment stations, and the teachings of high schools, colleges, and universities unless women in their homes are going to practice newer methods? And how are they to use them unless they know about them? And who shall tell them?

What a field there is for the extension worker! and what a rich recompense! There is no calling, with the possible exception of motherhood and nursing, that brings such keen satisfaction to a woman as that of the home demonstration agent. She is not bound by bells, hours, and four walls; she has no discipline to enforce; she is dealing with adult minds of active, inquiring women of experience; she has the whole countryside for her class room; she enjoys a freedom from sham and pretense that a class room instructor cannot know; her salary is far above that of the average teacher; she is a friend, a neighbor, an adviser, a playmate. She is "A little bit of heaven come down to earth in a Tin Lizzie."

FLORENCE CARVIN.

THE MERRILL-PALMER SCHOOL

EDNA N. WHITE

Director

The will of Mrs. Lizzie Merrill Palmer, providing for the establishment of the Merrill-Palmer School, was signed May 17, 1916. The ninth paragraph of the will is as follows:

I hold profoundly the conviction that the welfare of any community is divinely, and hence inseparably, dependent upon the quality of its motherhood and the spirit and character of its homes; and, moved by this conviction, I hereby give, devise, and bequeath all the rest, residue, and remainder of my estate, of whatsoever kind and character, and wheresoever situated, for the founding, endowment, and maintenance, in the City of Detroit, or in the Township of Greenfield, County of Wayne, State of Michigan, of a school to be known as the Merrill-Palmer Motherhood and Home Training School, at which, upon such plan and system, and under such rules and regulations as shall, in the judgment and wisdom upon whom the administration shall devolve, be adopted, girls and young women of the age of ten (10) years or more shall be educated, trained, developed, and disciplined with special reference to fitting them mentally, morally, physically, and religiously for the discharge of the functions and service of wifehood and motherhood, and the management, supervision, direction, and inspiration of homes.

Mrs. Palmer died July 28, 1916, and the will was admitted to probate June 26, 1918. The Court ordered that as soon as possible after the will had been admitted to probate the executors convey all the property, both real and personal, coming into their hands and belonging to the trust created by Mrs. Palmer's will, to the corporation to be thereafter formed and named the Merrill-Palmer Motherhood and Home Training School. Subsequently and on October 20, 1918, the corporation was organized with five trustees.

As a result of the settlement and distribution of funds the corporation came into possession of property appraised at \$3,000,000. This property was diversified in character, the income being low and the taxes on real estate high. It therefore became the plan to sell the real estate as judiciously as possible and reinvest in securities exempt from taxation and suitable for trust funds. The trustees felt that the organization of the school as an educational matter required special assistance and cooperation from women, and they soon associated with them six women as members of the corporation.

The women members directed their efforts during the first year toward securing a director to take active charge of the real organization. Edna N. White, then in charge of home economics work at The Ohio State University, was selected.

The present quarters occupied by the school consist of two private offices, one very large room, ample for the accommodation of desks for the staff and for class room space, and a small kitchenette, immediately adjoining, equipped for class use. A considerable library is being accumulated, and the large room is in frequent demand for conference purposes as well as classes.

The staff consists of the director, the secretary, Mabel R. Rodgers, and two specialists—Ellen Miller, in charge of the development of economics and special phases of homemaking courses, and Lila Skinner, in charge of nutrition.

Policies: In the report of 1919, made by the trustees to the circuit court, in chancery, the policy of the Board was outlined as follows: "It is the policy of the trustees to preserve the endowment intact and conserve the resources; to use the income for teachers rather than buildings, during the formative stages at least. It has been deemed very important to delay the investment of any portion of the endowment, or the income therefrom, in buildings until study and experience have shown the lines to be followed and the exact requirements in the way of buildings." Study and investigation have shown the wisdom of this policy and the desirability of its continuance. It has further been agreed that the wisest and most helpful expenditure of funds, from the standpoint of the community, would be in fields where public moneys could not be applied.

In order to establish the place and usefulness of this institution in the field of homemaking education the work of existing agencies has been promoted and supplemented. Thus by developing the types of work already begun in the community, the group and fields most neglected have been determined. The net result of these policies has been the development of experimental work in cooperation with public and private schools and with social service agencies, such as public health nurses, foreign case workers, and vocational groups.

TYPES OF EXPERIMENTAL WORK IN PROGRESS

Unit course in homemaking: This course has been planned to meet a situation common to both public and private schools where the time is too limited to teach techniques or skills and where the need of the girl is to develop view-point and judgment. As far as possible the teaching is based on concrete material and this course has been given to a group of "continuation" classes in the public schools.

The group of girls who have been returned to our schools by the operation of the so-called Continuation School Act constitutes one of the most difficult problems in the public school field. They are a group between 14 and 18 who have gone into industry, in most cases with little opportunity for home training. In cooperation with the teachers in charge of these girls an experimental study is being made by the Merrill-Palmer School as to the type of course best fitted to give them some viewpoint regarding home and family responsibilities, and some knowledge of the economic and social background of the home. The aim of such a course is to develop standards and judgment, for the large proportion of the group marry early and take on family responsibilities without understanding the importance of adequate training for homemaking.

This piece of work is under the direction of Miss Miller. The course as planned is given to each girl in the school, the classes enrolled aggregating 600. Next year the new law will bring in a much larger number, and by that time it is expected that a well defined method will have been developed and will be in operation. While this course has been developed with the group of "continuation" girls, it will be adaptable to other groups in other types of schools where the need is for a general course in homemaking, rather than for a highly specialized course.

Extension nutrition teaching: The prevalence of malnutrition among children, with its disastrous physical effects, is alarming. Conservative estimates place the numbers at between 25 and 33 per cent, including rural regions. It is probable that the prevailing high prices of food and the scarcity of certain types have greatly increased the number of children involved, although undernutrition is by no means confined to impoverished classes. The pressing need of better educational methods in this line became apparent, and the public schools seemed to offer the most effective avenue of approach. A survey showed the entire inadequacy of available material for the use of public schools. In addition to this the teaching had been confined largely to a few

specialists and was therefore limited to such groups as were able to secure their services.

It seemed, therefore, necessary to plan methods and material for teaching nutrition through the work given by the regular elementary teacher. The Merrill-Palmer School secured the services of Anna R. Van Meter, formerly a primary teacher, and now specialist in the Nutrition Bureau of the National Red Cross, who prepared a first reader, the beginning of a Nutrition Series. Special outlines in nutrition to be used in connection with physiology are in process of preparation.

Home problem courses for social workers: The place and need of training along homemaking lines in the field of social service is beginning to be recognized. In the work of the public health nurses the need for training in child nutrition is imperative. In nurses' training a limited amount of work is given in diet for the sick, but no attention is given to normal nutrition especially as it relates to children. In order to meet this need and to develop courses that will be useful to similar groups, the Merrill-Palmer School organized a class of Red Cross nurses, approximately twenty-five in number.

The Americanization of foreign women seems at present an unsolved problem though its importance is generally recognized. In order to study the possibilities of reaching them through home training, an experimental class with the foreign workers of the International Institute, comprising approximately seven nationalities, has been organized. The first phase of the study has been along nutrition lines.

Both of these studies are under the direction of Miss Skinner.

Summary. The first consideration has been the development of methods and courses rather than the formal gathering of groups of students. The preliminary steps have been, first, to determine community needs, and, second, to readjust subject matter and methods of teaching to meet these needs. Since we are unhampered by the limitations of organization and tradition we feel that this is the distinct and special service we can render. What has been accomplished has been due to the cooperation of the educational forces, especially the home economics teachers in Detroit and Highland Park.

The Merrill-Palmer School is most anxious to secure the interest and cooperation of the home economics group in general, and wishes to extend a cordial invitation to visit the school whenever possible.

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lard substitutes.

DEFINITION OF TERMS USED IN THIS STUDY

1. Leaf lard comes from the internal fatty tissue of the abdomen of the hog, excluding that adherent to the intestines (mesenteric, omental); i.e., it includes the perinephritic and the peritoneal layers of fat. This

¹ We are greatly indebted for information and for helpful criticism to Dr. F. W. Meyst and Mr. R. H. Kerr of the Bureau of Animal Industry, U. S. Department of Agriculture.

KER

SEHOLD PASTRY

ATMAN, AND ROSALIE

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tissue is often "kettle-rendered" by the manufacturer, or "tried out" by methods somewhat similar to those used in the household. Being a fatty tissue comparatively free from connective and muscle tissue, it is better suited to this method of rendering than are some of the fats taken from other parts of the hog. Lard may not be labelled "leaf lard" unless it is rendered from the leaf tissue only, unmixed with other fats. Back fat is also considered to be of comparatively choice grade; but a leaf lard which is mixed with back fat must be so labelled, according to federal regulations.

2. Kettle-rendered lard may be made from leaf tissue only, but the greater portion of kettle-rendered lard offered to the retail trade is derived from mixed body fats. The smaller packing establishments are more likely to render their lard in an open kettle, because such equipment is less expensive for them and better suited to their needs. Kettle-rendered lard, if choice, has a color, odor, and flavor which suggest, to some degree, the best home-rendered lard.

3. Steam lard, as its name indicates, is rendered by the use of steam under pressure. It is ordinarily derived from various mixed fatty tissues from the hog carcass. Prime steam lard does not come to the retail market as such, but goes to the refinery; from whence it makes its appearance as refined, steam-rendered lard—the "pure lard" of the trade, in contradistinction to lard compounds and other substitutes. Steam lards may be smooth, or they may be more or less granulated, owing to the formation of crystals of various sizes. It is well known that fats which cool very slowly and gradually often show a decided "grain," owing to the considerable size of crystals which thus have an opportunity to form. Agitation of the mass of cooling fat also is conducive to "graininess." Steam lards frequently do not have the creamy smoothness of a kettle-rendered leaf lard; yet that fact is not ordinarily counted either to their advantage or to their disadvantage, by the average cook.

4. A true lard compound, according to the standards of the U. S. Department of Agriculture, is a fat in which at least 50 per cent of the constituents consist of lard, and in which 50 per cent (or less) consists of some other fat than lard, usually a vegetable fat. There is not a great deal of lard compound on the market; at least, such is our information at the present time. A lard compound may be considered as one of the many kinds of lard substitutes, although the reverse statement would of course be very far from the truth.

5. In addition to the true lard compound just mentioned, there are many kinds of so-called "compound" (i. e., another sort of lard substitute), and some of these have a very extensive sale. Most of them contain no lard whatever, yet they may be able to win favor or even marked preference from some housekeepers; while others assert that they "can always taste" this or that "vegetable lard," or other lard substitute, in the pastry or cake made with it.

a. The lard substitute may be from mixed animal and vegetable sources, as is the case with "compound" (*not* lard compound), which usually consists of 15 to 20 per cent beef (or possibly lard) stearin, and 80 to 85 per cent vegetable oil (cotton seed, peanut, or soy-bean oil).

b. Lard substitute which is entirely from vegetable sources may consist of 10 to 15 per cent of a vegetable stearin which consists of hydrogenated or hardened vegetable oil, mixed with 85 to 90 per cent of vegetable oil in the fluid state. It seems, however, that such mixtures are less commonly made now than formerly.

c. Or, it may consist entirely of a hydrogenated vegetable oil, in which case the hardening is carried to a much less extreme degree than when only a small fraction of the oil is subjected to the hardening process.

d. A third possibility is the use of a vegetable oil (cocoanut butter) which is normally solid at room temperatures, provided those temperatures be not too high (temperate climate); or, what is more usual, the use of a vegetable stearin, separated by expressing the softer fats from cocoanut butter.

COMPARATIVE PRICES OF LARD AND LARD SUBSTITUTES

A brief survey, by no means complete, of a number of the retail markets most largely patronized by householders in certain residential districts in Washington, disclosed the price conditions, October 12 to 15, 1920, shown in table I.

A brief consideration of the detailed table, from which these generalizations were taken, led us to conclude that with the exception of pure leaf lard, the range of prices of different lards (whether kettle-rendered or steam-rendered), and of the numerous lard substitutes, was about the same in all cases, so far as this study is concerned. The chief cause of retail price variation upon any given date appeared to be, not the chemical composition or physical characters of the fat concerned, but the character and management of the market in which it was purchased. In fact, these figures showed in several instances that one and

the same article, enclosed in a labelled and sealed package, might show a variation of ten cents per pound in different markets, often not half a dozen blocks apart.

TABLE I

<i>Prices of lard and lard substitutes</i>	Price per pound <i>cents</i>
Pure lard from Chicago packing house No. 1, rendered in open kettle from pure leaf lard tissue, sold in 2 pound and 5 pound pails.....	35 to 42½
Pure lard from Chicago packing house No. 2, rendered in open kettle from mixed leaf and back fats, sold in 2 pound or 5 pound pails. (Cheapest in 5 pound pail sold at chain store.).....	28 to 42½
Pure lard packed in local establishment, rendered in open kettle from mixed hog fats, sold as 1 pound package wrapped in paper. (Cheapest at manufacturer's booth in city market.).....	28 to 35
Similar to above in materials and process but different brand and factory, sold from large bulk package.....	27
Pure lard from Chicago packing house No. 2, rendered by use of steam under pressure from mixed hog fats, and refined; sold in 2 pound pail.....	29
Same as above, sold in carton. (Cheapest at chain stores, next cheapest at booths in city market.).....	26 to 35
Similar to above in materials and process, but different brand; rendered in local establishment and sold from large bulk package at manufacturer's booth in city market.....	25
Lard substitute from Chicago packing house No. 1, contains no lard; a compound, 20 per cent beef stearin, 80 per cent cottonseed oil; sold from large bulk package.....	30
Lard substitute from Cincinnati factory; a vegetable shortening, in which the entire mass (of cottonseed oil) is hydrogenated to a moderate degree; sold in 1 pound or 1½ pound can.....	27 to 35
Same as above but sold in 6 pound cans.....	25½
Lard substitute from New Orleans factory, a vegetable shortening, in which the entire mass (of cottonseed oil) is hydrogenated to a moderate degree; sold in 1 pound can.....	35 to 40
Same as above, sold in 2 pound can (chain store).....	24
Lard substitute from New York factory; a vegetable shortening composed of coconut butter stearin. (Price represented as being a substantial reduction; sample apparently still in good condition.).....	22

The influence of the size and kind of container was not found to be very great. A cheaper price was sometimes quoted, on a larger package than on a small one, and the character of container (metal, paper, etc.) sometimes made a slight difference in price; but these price differences, when they occurred in the same market and therefore might be considered strictly comparable, usually amounted to less than one cent a pound.

One of the important factors which controls price is the careful discrimination of the customer who knows what he must pay, in other

stores or markets, for the article he wants to buy, and who accordingly refuses to pay a higher price. In those markets where the majority of the customers are not greatly interested in saving a few cents on each purchase, it is easy for the retailer to advance prices, even for standard articles in labelled, standardized containers.

EXPERIMENTAL WORK

Series A and B. Inasmuch as the claim had been urged on the part of certain manufacturers that certain lards (or lard compounds or substitutes, in some cases) would "go farther" in baking than would other lards, so that "three parts of this shortening may be used in place of four parts of ordinary shortening," a rather severe test was planned. A formula (A) was chosen which makes a pastry which is quite low in fat; then another formula (B) was evolved from this, in which the amount of fat was 25 per cent lower than before. Where the amounts of fat used are very low, any decided superiority in shortening effect of one fat over another should be more quickly apparent than when a rich or moderately rich pastry serves as a basis for comparative tests. It may be added that, with proper manipulation, this very plain paste designated as "Formula A" yields a tender flaky pastry, and one which is well worth while, especially when freshly made.

Inasmuch as the physical condition of any given fat sample may have a great deal to do with its successful use in baking, there were also under investigation, in this same test, the claims of the manufacturers of grainy lards and of grainy "compounds" (or lard substitutes) for the superior shortening effect of their products.

Six different fats were used, viz.: leaf lard, 100 per cent (kettle rendered); refined prime steam lard (mixed hog fats); open kettle-rendered lard (mixed hog fats); a "grainy" lard substitute composed of cottonseed oil and oleo-stearin; a cotton seed oil, 100 per cent of which was hydrogenated (but only to a very moderate degree); and a similar cottonseed oil product from a different factory, whose product differs greatly from the first in its physical characteristics. Samples were secured directly from the plant, in case of the first four fats of the series. The hydrogenated cotton seed oil products were purchased from Washington city markets.

The pastry was made by the following formulae: Formula A—1 cup or 112 grams of flour, 3 tablespoons or 42 grams of fat (37 per cent of the weight of the flour), 2 tablespoons or 30 grams of water (26.5 per cent

of the weight of the flour). Formula B—identical with A except that 2 tablespoons or 31 grams of fat were used (27 per cent of the weight of the flour).

Each fat was used twice, once according to Formula A and once according to Formula B. This gave twelve different lots of pastry.

In order to be sure that the manipulation used was exactly the same in every case, the number of motions made in mixing fat and flour together with the knife was always counted and kept at a specified number. The same thing was true of the number of motions made in mixing water with flour and fat; and with those used in blending and also in rolling the dough. Furthermore, pains were taken to see that the fats and other ingredients were always at a given temperature (15°C.) when the mixing was begun.

The dough was rolled to uniform thickness, without further addition of flour, or with the addition to the board of a specified amount; and cut into squares of specified size. It was baked always in a certain oven for a specified time at a specified temperature range and to a given shade of yellow or brown.

The resulting pastries, when cold, were then judged by a number of persons, five of whom were required to grade the twelve pastries by setting each down in order of preference. In no case did any of the judges know the history of any of the pastries, nor the opinions of any other judge concerning them.

All judges agreed that the pastries of any given series were very much alike, and that it was difficult to make distinctions among those of the same series. Evidently the differences, though slight, were unmistakable, since there was fairly good agreement among the verdicts rendered. The results, as averaged from these five reports, in case of two separate tests made as above described, were as follows: First choice in each series, a certain "grainy" lard substitute. Second choice in each series, a certain cotton seed oil product (entire batch hydrogenated to a moderate degree). Third choice in each series, a certain kettle-rendered lard containing mixed hog fats. Fourth choice in each series, a certain steam lard (containing mixed hog fats). Fifth choice in each series, a second hydrogenated cotton-seed oil product. Sixth choice in each series, a certain leaf lard (100 per cent).

In no case was a pastry from the 31-gram series judged to be equal in texture and richness to any sample from the 42 gram series. It is

evident therefore, that the statement cannot justly be made of any of these fats, that "three parts (of this fat) go as far as four" of other fats.

Series C. In this series of experiments, which was performed by an investigator who did not know of the earlier experiments, the manipulation used was somewhat different; and it was modified, to suit the type of fat used, in this respect: those fats which mix less readily with the flour were given an additional number of cutting motions until the dough was judged to be thoroughly mixed. Even these differences were, however, carefully standardized, so that each fat received always the same number of cuttings, i.e., that which had been determined to be most suitable for it.

The formula used in this series was as follows: 82 grams of flour plus 3 grams of flour for board, 36 grams of fat (43 per cent of the weight of the flour), 17 cc. of water (20 per cent of the weight of the flour), 1 gram of salt. This formula, though higher in fat than those used in the preceding series, is still much lower than are most of the household recipes; since the common rule, 1 cup of fat to 3 cups of flour, calls for fat equal to 67 per cent of the weight of the flour.

Series C was repeated many times, using nine different lards (a pure leaf lard among them) and two "vegetable lards" (hydrogenated cottonseed oil). Two of the lards were judged to produce crusts of slightly superior texture; but the difference was so slight as to pass unobserved by all except the most experienced judges. These two lards were both steam lards; one of them was not a prime steam lard, and was suspected of containing a certain quantity of (lard?) stearin. It is barely possible that this may prove to be the cause of its slight superiority; the broad flakes which seemed to be characteristic of the crusts made from these two lards, reminded us of the flakes formed in a puff pastry made from a fat which contained a considerable proportion of beef stearin.

The differences among these different crusts were so slight that none of the judges, not even the most experienced ones, could say from the texture of the crust, when filled with apples and baked as a pie, which one of these fats had been used.

It was found, however, that some of the judges did possess discrimination with regard to the differences in flavor between lard and hardened cotton-seed oil products. One judge specially disliked the taste of lard, and could select crusts made from it, even in the case of refined steam lard, with a tolerable degree of accuracy. Other judges disliked

the cotton-seed oil products, and could usually select the crusts made from them, though not with an accuracy of 100 per cent. It is, however, quite difficult for an untrained judge who does not specially dislike one of these flavors, to discriminate between the crusts made from lard and those made from hardened cotton-seed oil.

In making comparative tests for flavor of cakes and pastries, the greatest pains should always be taken to see that all samples of fat used have a good flavor before being cooked. It is manifestly unfair to compare a steam lard which has become even very slightly rancid, or which is in some degree "off flavor," with a leaf lard which is still perfectly fresh, and vice versa. Our own experience, which is somewhat limited, indicates, however, that the leaf lard usually keeps its flavor longer, under the same storage conditions (open package in household refrigerator) than do most of the other lard samples.

The relative merits of creamy and grainy fat were tested in the following manner: A smooth creamy lard was melted and then cooled very slowly in a warm water bath; meanwhile it was beaten frequently. This treatment caused it to become "grainy," because of the opportunity offered for the formation of large crystals. Conversely, a grainy lard was melted, then cooled very rapidly (in ice water bath); thus a smooth creamy texture was produced. When the creamy and grainy samples of these two lards were compared in pastry making, it was found that they could not be distinguished.

CONCLUSIONS

1. When using different grades and kinds of lard in comparison with each other and with those lard substitutes which consist of hardened cotton-seed oil, it was found that the richness and texture of the crust depend upon the manipulation used and not upon the kind of fat used.

2. Only a small proportion of the persons who ate the pies were able to detect the characteristic flavors of cotton-seed oil or of lard, in the baked crusts, particularly when baked with filling as pies.

3. Graininess of texture does not, in itself, confer superiority upon a shortening, either as to ease of manipulation in mixing fat and flour, or as to richness of final product. This statement is not to be interpreted as meaning that some grainy shortenings may not have excellent or even superior culinary qualities.

THANKSGIVING DINNERS¹

Good New Englanders observe their Thanksgiving Day as religiously as good Old Englanders do Christmas Day, and in very much the same way—by a more or less prodigious dinner, in which roast turkey is the *pièce de résistance*.

Thanksgiving, which is held on the last Thursday in November, was instituted by the Pilgrim Fathers and dates from the early days of the settlement of the American Colonies, and the dinner of Colonial times was a very substantial affair. Here is a special menu which has come down to us:

	Punch	
Clam Chowder or Indian Pudding.		Molasses, Butter
Wild Turkey, Preserved Damsons, Pumpkin Sauce		
	Succotash	
	Venison Pasty	
Sallets.	Cheshire Cheese (Narragansett make)	
	Pumpion Pie	
China Oranges.	Glazed Almonds	
	Grace Cups (Sack Posset)	

Every buffet of people of fashion contained a punch bowl; every dinner was prefaced by a bowl of punch, which was passed from hand to hand and drunk from, without intervening glasses. Following the grace and punch, came the first course, clam-chowder or Indian-meal pudding; the latter was probably more often served. As late as 1817, at a Sunday dinner given at the house of President John Adams, the pudding of Indian-corn, accompanied by molasses and butter, was served at the beginning of the meal.

In early colonial days the Thanksgiving turkey, it would seem, was easily obtained; all writers of the time agree that "beside waterfoule ther was great store of wild Turkies." These turkeys "sometimes weighed forty pounds apiece and sold for four shillings each." They came in flocks of a hundred, and all considered them far superior to the English domestic turkeys.

For the "pompion-sauce" we subjoin a recipe given in 1671, in "New England Rarities:"

"The Housewife's manner is to slice them when ripe and cut them into Dice, and so fill a pot with them of two or three Gallons and stew them upon a gentle fire the whole day. And as they sink they fill again with fresh Pom-pions, not putting any liquor to them, and, when it is stirr'd enough, it will look like bak'd Apples, this Dish, putting Butter to it and a little Vinegar with some Spice or Ginger, which makes it tart like an Apple, and so serve it up to be eaten with fish or flesh."

¹ From *The Table*, Vol. 69, No. 1786, p. 216.

The first colonial housewives, newly come from Old England, were adepts in all culinary affairs, and, as soon as they were comfortably settled in their new homes, they revived their knowledge of preserving, conserving, cordials, and the making of pastry, and, we might add, cheese-making, for early in the seventeenth century Cheshire cheese, made from a recipe brought from England, was sent from Narragansett to England and the Barbadoes in large quantities.

The dinner finished, "grace after meat" was reverently said, all standing; then the "grace-cup," the loving-cup of to-day, was passed from guest to guest. After this came the old English games and mirth, as in the old rhyme:

"And dinner, grace, and grace-cup done,
Expect a wondrous deal of fun."

The contents of the grace-cup was a highly-spiced drink sometimes made of cider, but more often of ale and sack, thickened with eggs and cream, and seasoned with nutmeg, mace, and sugar. It was boiled on the fire for hours and, according to the writers of that day, made "a very pretty drink for weddings and feasts."

TURKISH COFFEE

Possibly few of us realize that the famous Turkish coffee, which always comes to mind when one thinks of food in the near east, is very different from that to which we are accustomed. Roasted coffee is ground to a very fine powder. Quaint, but small, brass coffee mills are used.

When coffee is made, water is poured on the coffee grounds and the whole is consumed. Milk and cream seem to belong to the Western world according to Mrs. Rosita Forbes who has recently written about oriental coffee customs in *The London Sketch*. "Can one take sugar with Turkish coffee and what becomes of the grounds when you stir it? The Bedouins add cinnamon and spice, or, in Syria, bitter cardamon seed, to their coffee. Scent of amber or attar of roses may perfume it; orange flowers may soak in it; musk may be poured through straw-stuffed racks of clay burmas into it, but never sugar. In fact, that is about the one thing that is wholly incongruous, for it is ground and mixed with the very coffee itself."

EDITORIAL

Catherine Josephine MacKay, dean of the home economics division of Iowa State College, died August 22 at the home of her brother in Winnipeg, Canada. Dean MacKay had not been well for the past two years and had recently been granted a leave of absence which her friends had hoped would result in her recovery to health. In Miss MacKay's death home economics has lost one of that group of noble women whose high ideals and untiring efforts finally succeeded in putting home economics on a par with other collegiate courses, and securing for it the full recognition of colleges and universities. Furthermore, these leaders were not content to limit their efforts to the students within the colleges, but carried homemaking instruction to women in the remotest parts of the country, through the extension service.

When Dean MacKay went to Iowa State College in 1910, there were 116 students enrolled in home economics, and she was one of a staff of four instructors. Extension work was in its infancy. In the eleven years of her leadership the small department has become a division of the college, enrolling 800 young women in home economics and employing fifty instructors. The extension service numbers seven state specialists and twenty-five county home demonstration agents.

Dean MacKay's work won national recognition. During the years 1916-18 she was president of the American Home Economics Association; she served as a member of the National Food Administration Board under Herbert Hoover, and was Iowa State chairman of the Women's Council for National Defense. At the time of her death she was vice-president of the Iowa Equal Suffrage Association.

Miss MacKay's early work was done in Winnipeg, Canada, where she had charge of home economics in the public schools of that city. Later she directed the home economics classes for the Young Women's Christian Association of Minneapolis. She was a graduate of Drexel Institute and the Boston Cooking School and had done further study at Teachers College, Columbia University. In recognition of her leadership in home economics, the honorary degree of Master of Science was conferred upon her in 1917 by her Alma Mater, Drexel Institute.

Another fitting tribute to her scholarship and splendid contribution to the field of home economics is shown by her election to membership in the honorary societies of Phi Kappa Phi and Omicron Nu.

Those of us whose good fortune it has been to know and work with Dean MacKay, and to feel the charm of her graciousness and the sincerity of her comradeship, are mourning the loss of, not only a leader, but a dear friend. The secret of her success has been summed up by one of her colleagues in the following tribute: "Miss MacKay has all along had vision to see what might be; she has had foresight to plan well for growth; she has had ideals for high standards; she has had skill in presenting her plans; she has had tact in securing sympathy and support for home economics on the campus and throughout Iowa; she has had good judgment in surrounding herself with a capable, devoted instructing staff; she has had ability to maintain the best of spirit in a large organization; she has, withal, patience. If it had not been for this combination of qualities, the story or the past eleven years might have been much different."

The spirit of Dean MacKay is typified by her last message for the Senior Class: "Will you find some way of expressing to the Senior Girls my bitter disappointment in not being there to see them graduate and to bid them God speed? They are all so dear to me. Their future means so much to the future of our state and country; their responsibilities are greater than have ever before fallen to the lot of young people. The world is in a state of chaos; it sorely needs trained men and women of sincerity, of good sound judgment, of vision, and of constructive energy. We need them everywhere, in the home, in the shop, in the factory, in the class room and wherever there are men and women to be led and boys and girls to be trained."

GENEVIEVE FISHER.

Correction. The JOURNAL expresses regret for the following error: Proceedings Number, September 1921, p. 422, Recommendations of the Committee on Extension Needs and Maintenance. Report submitted by Laura Comstock, Chairman. This report was submitted by Grace Frysinger, Chairman.

Whole Wheat versus White Bread. The teacher of nutrition is apt to be at a loss to know what she should be teaching in regard to the use of white and whole wheat flours. We are told on the one hand that of our cereal foods only the whole grains contain the mineral constituents and vitamins so essential for our well-being, and on the other hand that the coefficient of digestibility of some of the nutrients of the coarser flours is so low as to make their use scarcely worth while.

According to Holmes¹ the digestive apparatus of the human being makes but little use of the branny coats of wheat. The presence of bran either coarsely or finely ground even hinders the digestion of other food in the mixed diet probably because the stimulated peristalsis hastens the passage of the food through the body. The utilization of the protein of a mixed diet decreased by the presence of rather large amounts of commercial bran from 92 per cent to about 37 per cent. Briggs² considers bran as no more nutritious or digestible than pulverized nut shells would be. When entire wheat flour instead of merely the bran is fed, the coefficient of digestibility of its protein can be increased somewhat by grinding the grain more finely.³

Analyses (see Sherman, "Chemistry of Food and Nutrition") show that iron particularly is present in much larger quantities in the graham and whole wheat flours than in the patent flours; in plans for a diet high in iron, the darker breads and graham products usually occupy an important place. One naturally wonders whether this iron is actually available when the remainder of the bran is so little affected by digestion. Data on the utilization by man of the iron of cereals seem to be entirely lacking.

The only one of the vitamins which wheat furnishes abundantly is the water-soluble B, and the embryo of the different parts of the kernel is by far the richest in this substance, although the wheat kernels from which the embryo has been carefully removed are still rich in it. Osborne and Mendel⁴ "feel justified in the conclusion that except in special cases, little can be regained by including bran and embryo in the flour when this is used under the conditions prevailing in this country. The by-products of milling are better utilized on the farm than on the table. . . .

¹ A. D. Holmes: Experiments on the Digestibility of Wheat Bran in a Diet without Wheat Flour. U. S. Dept. Agr., Bul. 751 (1919).

² C. H. Briggs: The Digestibility of the Branny Coats of Wheat. *Science*, 50, 427 (1919).

³ C. F. Langworthy and H. J. Deuell: Experiments on the Digestibility of Entire Wheat Flour Ground by Various Processes. *Science*, 51, 398 (1920).

⁴ T. B. Osborne and L. B. Mendel: The Nutritive Value of the Wheat Kernel and its Milling Products. *Jour. Biol. Chem.*, 37, 557 (1919).

Whenever bread made from highly milled flour forms an unduly large proportion of the diet of children the vitamine deficiencies may lead to malnutrition. In this country there is relatively little occasion to be concerned on this score because the food habits of our people are such as to make cases of this kind comparatively rare." There are others, however, who believe differently. Voegtlin⁵ says that "a product containing no bran but containing the germ would not possess these objectionable features (intestinal irritation in susceptible individuals) and would at the same time be more nutritious and would greatly reduce the possibility of vitamine deficiency in the modern mixed diet. Increasing the vitamine supply in the diet should be our aim in order to insure a sufficient margin of safety, and increasing the vitamine content of our daily bread would go a long way toward accomplishing this end." Some of the physicians in charge of baby welfare clinics advise the use of only the whole cereals for gruels and breads for babies and nursing mothers to assure a high vitamine diet.

Our preference for white flour is largely a matter of habit encouraged by the fact that white flours lend themselves better to the making of the well-risen, fine-textured loaf to which we are accustomed. Where a need of increased intestinal peristalsis has made the use of coarser flours a necessity, a similar preference has often developed for the whole wheat or graham breads. Where our choice does not involve any actual dislike of the coarser breads, probably the most important point for consideration is that a diet on the verge of a deficiency of vitamins might find the whole wheat bread its factor of safety.

OPEN FORUM

Drawing the Line between Sociology and Economics. Where does sociology end and economics begin, or vice versa, is a question that has troubled not a few teachers and students, as these two closely related subjects have become more and more developed. According to Professor Franklin H. Giddings in a recent paper,¹ better results would be accomplished if the line of distinction were more sharply drawn. He also gives some pointed suggestions about methods of gathering sociological data.

⁵ C. Voegtlin and C. N. Myers: Distribution of the Anti-neuritic Vitamine in the Wheat and Corn Kernels. *Amer. Jour. Physiol.*, 48, 504 (1919).

¹ Further Inquiries of Sociology, delivered at the annual meeting of the American Sociological Society, Washington, D. C., December, 1920.

In the same large sense in which economics is the science of the production and distribution of wealth, for man, sociology is the science of the production and distribution of adequacy, of man and in man. Economics tells us how, as far as it is possible, we can get the things that we desire to have; sociology tells us how, as far as it is possible, we can become what we desire to be. It tells us by what gropings and fumbings, through what relations with one another, and through what experiments in mutual aid mankind has acquired power to survive under varied and changing conditions, power to achieve, and capacity for happiness. Adequacy comprises endurance, health, reproductive vigor, intelligence, self control, ability to make adjustments with others and to get on helpfully with others in co-operation. Society produces these factors of adequacy in the same sense in which the breeder produces desired qualities in animals, namely, by selecting them and providing the conditions under which they can survive. The practical manifestations of adequacy are: individual initiative, individual responsibility, and an individual participation that is efficient and helpful in collective endeavor. . . .

Studies of actual or possible betterment of the conditions under which and by which people live are economic investigations in substance, if not in form. Studies of actual or possible improvement of the people themselves are sociological investigations. It would conduce to harmonious relations between economists and sociologists if this discrimination were made in teaching and in the organization of university departments. Economists have a right, I think, to object when sociologists try to take from economics and annex to sociology studies of housing, cost of living, family budgets, wages, hours and conditions of labor, insurance, and pensions. With equal right sociologists could object if economists tried to appropriate studies of folkways, social pressure by taboo and bullying, social selection, organization, and morale. The sociologist should know his economics well enough to avoid making a fool of himself when he talks about economic problems. A more technical knowledge of the subject he does not need unless, besides being a sociologist, he is also professionally an economist. As a sociologist he must be technically trained and proficient in the behavioristic psychology and in statistics; and he must keep in touch with the workers in eugenics who inquire how the human race can be improved in heredity, and with the workers in religion, in ethics, and in education, who are the technicians of morale.

How shall the further inquiries of sociology be made? What method or methods can be used and relied on? The method must be inductive and there is only one inductive method that sociology can use. It consists of three steps. First, accurate first-hand observations must be made in great number and carefully checked up. The second-hand observation of the interviewer has been overworked; it can yield us nothing but a journalistic sociology. Second, observations must painstakingly be recorded and intelligently classi-

fied. Third, the data so obtained and prepared must be subjected to statistical analysis for the purpose of discovering ratios, modalities, coefficients of variation, and correlations.

What facts shall be observed? Not static conditions only or chiefly. The survey has its place and its value, but it can never give us the laws of social change. To discover these we must observe and analyze social experiments. Social evolution has proceeded by trial and error. Mankind has made more experiments on and in society than on or in any other medium. They have been imperfect, errant, often erratic, and there is not much ground for hope that in the future they will become scientifically more satisfactory, because the sociologist cannot, like the physicist or the biologist, isolate one factor of a situation after another either by changing it while all other factors are kept unchanged, or by keeping it unchanged while all other factors are changed. Discouraged by this difficulty Mill in his *Logic* mistakenly tells us that the social sciences cannot successfully employ induction to any great extent, and must rely on the deductive reasoning used by the classical political economy. Mill apparently knew nothing of statistical theory or practice. Happily it is often possible, statistically, to isolate a factor and measure its value even when, from a laboratory viewpoint, experimentation has been inconclusive. Scientifically imperfect social experimentation, bewilderingly varied and quantitatively enormous, is going on at present in every part of the world. It is the duty of the sociologist to observe and analyze it.

THE QUESTION BOX

Question: Is gelatine assimilated by the body cells? Is it in any way harmful?

Answer: Gelatine lacks certain essential aminic acids—tryosin, cystin, and tryptophan—to make it a complete protein, and therefore it cannot be used to cover the protein requirements of the body. When it is used in combination with these lacking “building stones” in the proportions in which they occur in “complete proteins”, nitrogen equilibrium may be established. In metabolism experiments it has been found that approximately one-third of the protein requirements can be covered by gelatine, hence the statement frequently made that gelatine, is a “protein sparer.” We know of nothing that indicates that gelatine is toxic.

BOOKS AND LITERATURE

Nutrition and Clinical Dietetics. By HERBERT CARTER, PAUL HOWE, and HOWARD MASON. Philadelphia: Lea and Febiger. 2d ed. rev., 1921, pp. 703. \$7.50.

The first edition of this comprehensive work was a welcome addition to our textbook literature of dietetics, especially on account of its sincere effort to organize scientifically our meagre knowledge of the principles involved in feeding the sick, and to correlate with these the best practices. The second edition has been entirely reset, with amplifications or minor changes at many points and more extensive revision of the chapters on Digestion, Energy Requirement, and Vitamines. One entirely new chapter has been added dealing with three different topics, Food Requirements in Pregnancy and Lactation, Food Requirements and Feeding of Children, and Fasting.

In the chapter on digestion the discussions of appetite and hunger have been extended and marked off by special headings, and a section on Sensibility of the Alimentary Tract has been added. Under Gastric Digestion attention is called to Carlson's recent work on the control of the pylorus, but no mention is made of Alvarez's work on the control of motor processes in the alimentary tract, and no attempt has been made to correlate Carlson's findings (p. 28) with Cannon's observations on the rate of passage of various food from the stomach (p. 54), nor is the point brought out that in man food begins to leave the stomach in a few minutes after a meal.

The most important addition to the chapter on Energy Requirement is the presentation of the Harris-Benedict formula for the estimation of basal metabolism.

The chapter on Protein Requirement still cites Thomas's data on the biological efficiency of proteins, though Sherman has shown that the values for wheat and corn

are incorrect. No mention is made of Sherman's critical analysis of the data on protein requirement of maintenance in man, though he has shown that the probable error in a standard requirement of 44.4 grams of protein per man per day is only ± 0.6 gram.

A similar criticism applies to the discussion of phosphorus requirement. The authors say "the phosphorus requirement of man has not been determined with any certainty" but Sherman has shown that a standard of 0.88 gram of phosphorus per day has a probable error of only ± 0.01 gram.

The chapter on vitamines is brief and the omission of a table showing the distribution of the vitamines is rather surprising in view of the elaborate tables in other sections of the book. It is startling at the present time to read, "Two types of unidentified substances or vitamines have been detected and a third appears probable," at the top of page 103, especially as at the bottom of the same page the statement is made that "the third vitamine has recently been established as an entity." Discussions of scurvy, pellagra, and rickets are partly here and partly in other parts of the book, and it is unfortunate that no cross references are supplied. It is certainly an oversight that in the dietetic treatment of rickets cod liver oil is not mentioned.

In the discussion of energy requirement in pregnancy it is stated that the energy metabolism of the mother in the later stages of gestation is increased approximately 4 per cent, though Murlin's work is cited showing that the metabolism of mother and child immediately after birth is equal to that of mother and fetus just before parturition, amounting to from 10 to 20 per cent, and Magnus Levy has reported a rise of as much as 25 per cent in the oxygen consumption in the ninth month.

There seems to have been little revision of the section on Foods, though so much work has been done on the vitamins content since the first edition was published.

It is regrettable, indeed, that a work on the whole so excellent should not have had more careful editing and proof-reading. There are many errors in grammar (particularly singular subjects with plural verbs) and loose and misleading statements, for instance, that emulsified fat is "too stimulating" (p. 341) and that fat as a result of its oxidation plays a special rôle in the regulation of body temperature (p. 20). One can scarcely take seriously the statement that "animal fats *being more nearly homologous* are probably better than vegetable oils, and the fat from cod liver oil stands at the head of the list; for certainly this fat furnishes something which is in addition to its *hydrocarbon* content" (p. 332; italics are the reviewer's). One is left with the impression that the revision of this valuable work was entirely too hasty, and the reviewer feels a keen disappointment that a book so much needed by students, nurses, physicians, and others should not have more fully justified the cost of a second edition.

MARY SWARTZ ROSE

Household Chemistry For the use of students in household arts. By HERMANN T. VULPE. Easton, Pa.: The Chemical Publishing Co., 2d ed., 1920, pp. 243. \$2.25.

The new edition of *Household Chemistry* is a reprint rather than a revision of the preceding edition, published in 1915. The preface states that the book "is presented for the general study of chemical operations in the household," being designed for the needs of students in household arts of both secondary school and college grade. To adapt the book to either type of student the instructor makes such selection of material as best fits the needs of the class.

As the title implies the subject matter deals with the chemistry underlying those household processes which are familiar to the student in her daily routine. It begins with a suggested outline for a course in organic chemistry which could very well

parallel or be merged with the course in household chemistry. Following this is a chapter on the atmosphere and its composition, relating it particularly to the respiratory needs of the body and to a few facts and principles, a knowledge of which makes for a more intelligent ventilation of the home. The chapter on water discusses briefly those physical and chemical properties which have a bearing upon its use, as in the moderation of heat and cold, in refrigeration and heating systems, for cleansing and for drinking purposes. Two chapters are devoted to the discussion of the more common metals, glass, pottery and porcelain, their behavior with common reagents being stressed in order to make the application to the proper use and cleansing of household utensils. Natural and artificial fuels are taken up from the standpoint of composition, efficiency, and conditions making for greater safety and efficiency. Chapters on carbohydrates, fats, proteins, fruits and fruit juices, and tea, coffee, and cocoa are written around the chemistry which underlies the changes taking place during their preparation and use. The chemical principles upon which the leavening of flour mixtures is dependent is given in a chapter entitled, Baking Powders—Preservation and food preservatives; disinfectants and disinfection are covered by two chapters dealing with microorganisms, the changes they produce and the condition by which their action can be controlled. The chemistry of cleaning includes a discussion of soaps, scouring powders, metal polishes, bleaches and stain removers, grease solvents, and bluing. A brief contact is made with volumetric and gravimetric analysis, the methods being directly applied to the analyses of vinegars, baking soda, cream of tartar, household ammonia, soaps, cereals, and the estimation of reducing sugars.

The book as a whole contains much that is suggestive, particularly in the direct applications which are made to household and to body processes, and also in the experiments which are included to accompany and to provide the back ground for the text. To increase the bibliography and to summarize at the end of each chapter by a

series of questions, which would tie together the familiar occurrence and the chemical explanation, would strengthen the book, particularly for the college student for whom it is intended.

ELEANOR H. BARTLETT,
Pratt Institute.

Vocational Homemaking Education—Illustrated Projects. Edited by DAVID SNEDDEN. New York: Teachers College, Columbia University, 1921, pp. 149. \$1.00.

This pamphlet is the outcome of the work of a class of sixteen home economics students directed by Dr. David Snedden during the summer session of Columbia University for 1919. In a valuable introductory chapter, Dr. Snedden states that the materials offered constitute in effect merely a report of progress, for the entire subject of the project method in homemaking education is still tentative and experimental. Dr. Snedden goes on to point out the failure of mere technical instruction to function as vocational competency, and so the need of more practical objectives and more practical methods.

The objectives must be derived from direct studies of homemaking as now practiced by homemakers; from careful consideration of the extent to which practical training in the home itself can be depended upon to give basis for, or to supplement school training; and from a thoroughgoing study of the probable motive power for vocational education to be found in girls and women of different ages.

Dr. Snedden thinks that the summer projects represent only a passing phase at best, desirable and necessary perhaps for whole-hearted participation in vocational projects where only part of the student's time can be given to the vocational program; but he predicts that, under any fulltime vocational program, the requirements of the summer months should certainly not differ from those of any other months.

Following the introductory discussion of the project method is a provisional list of home projects listed under the headings Foods, Clothing, House Care, Laundry, Child Care, Accounting, Sick Nursing,

Housing and Furnishing, Youth and Adult Sociability, and Garden and Yard. Type projects from these groups, worked out in detail by members of the class, compose the major part of the pamphlet. These follow the general plan of suggestions to the teacher, and directions for the pupils. The latter include guiding questions and references for pupils' use in study. The controlling purpose in the preparation of these analyses is to make the student as completely independent of personal consultation with the teacher or others as is practicable.

It is a real contribution to the meager literature on the subject, even though, as Dr. Snedden says, it will be freely conceded by all who had a part in its making that they have proceeded only a few steps into this unexplored continent of possibilities.

Margarin. By W. CLAYTON. New York: Longmans, Green & Co., 1920, pp. 187.

This volume, which is one of the series of Monographs on Industrial Chemistry edited by E. Thorpe, includes a brief historical account of the development of the margarin industry; a description of the modern processes of the manufacture of margarins; a discussion of the chemistry of the constituents, and methods of their analysis and that of the finished products; chapters on butter, renovated butter, and compound lard; and a final chapter on nutritional chemistry, in which is discussed the question of the nutritive value of margarins from the standpoint of their digestibility and their content of fat-soluble vitamins.

A brief discussion of the denaturing of margarin and an extensive bibliography are appended.

Nutrition Bibliography. Prepared by the Bibliography Committee, New York Nutrition Council, May, 1921. Distributed by The Health Service, New York County Chapter, A. R. C., New York City.

This bibliography is the result of much effort by the committee in the critical collection of material and its presentation in a form which it is hoped will prove serviceable

to the physician, the organizer and supervisor of nutrition work, the field worker, the teacher, and the nutrition student.

The references are presented under five headings. The first division presents technical material dealing with standards of nutrition, growth, and development. The second provides sources of information with reference to methods of determining malnutrition and various studies showing the social and economic causes for its development. The third contains references to reports of nutrition work organized under different auspices in different communities. The fourth provides information about reliable reference material on health essentials, especially in relationship to points to be emphasized in educational work. The last section lists stories, charts, and other popular teaching material for use with children.

Suggestions for further study are contained in bibliographies mentioned in various annotations and in a special bibliography list. On the last page of the pamphlet are printed the names and addresses of organizations issuing pamphlet material listed in the bibliography, and also the addresses of publishers of books and magazines especially mentioned.

The committee that prepared this bibliography is composed of the following members: Clyde B. Schuman, Atlantic Division, American Red Cross, Chairman; John C. Gebhart, A. I. C. P.; Jean Lee Hunt, Bureau of Educational Experiments; Matilda J. McKeown, New York City Public Schools; Marie L. Rose, Child Health Organization; and Emma A. Winslow, Charity Organization Society, and Secretary of the New York Nutrition Council.

Catalog of Literature for Advisers of Young Women and Girls, Compiled by ANNA ELOISE PIERCE, Dean of Women, N. Y. State College for Teachers, Albany. New York: The H. W. Wilson Company, 1921, pp. 85. \$1.00.

This catalog is an annotated list of books and periodicals for the use of deans and other advisors of women and girls.

The author hopes that the book will accomplish results in furnishing references for busy people, in helping to build up personal and school libraries, and in stimulating effective means of relieving the dearth of literature in various phases of an advisor's work.

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Hand Loom Weaving. A. F. Barker, *Jour. Min. Agr.* [London], 27 (1920), No. 6, pp. 561-563. The Textile Department of the University of Leeds will help to develop hand-weaving projects in rural England on request.

Society of Cotton Products Analysts. *Jour. Indus. and Engin. Chem.*, 12 (1920), No. 6, p. 610.

Colloidal Fuel. *Jour. Indus. and Engin. Chem.*, 12 (1920), No. 6, p. 612.

The Wearing Quality of Exterior Varnishes Compared with Their Physical and Chemical Analyses. W. T. Pearce, *Jour. Indus. and Engin. Chem.*, 12 (1920), No. 6, pp. 552-555.

The Causes of Loss in Bottles During Pasteurization and Sterilization [of Soft Drinks and Fruit Juices]. A. W. Bitting, *Glass Industry* 2 (1921), No. 7, p. 71. From "Bottles," May, 1921.

Venetian Glass Beads. *Glass Industry*, 2 (1921), No. 6, p. 137. In this article, taken from Schnurpfeils Review, information is given regarding the manufacture of venetian beads of different sorts and their use, as well as some commercial data.

Glass Resistant to Sudden Changes of Temperature. A. Blum, *Glass Industry*, 2 (1921), No. 2, p. 34. A brief account, including formulas, is given of the new type of glass used in casseroles and baking dishes. "Apparently, the impetus to the large development of glass of this character for culinary vessels was produced by the discovery that lithia when added to the borosilicate glass enabled it to be worked more economically and without lowering its efficiency to resist sudden changes in temperature, and it is interesting to note that this development was entirely American."

Evolution of the Mold Industry [in the manufacture of glass articles]. G. B. Arduser, *Glass Industry*, 2 (1921), No. 2. The development of the use of molds in making bottles, electric light shades, glass dishes, blanks for cut glassware, and other articles, including those used in the home, is discussed.

Devitrification and Revitrification of Glass. J. B. Krak, *Glass Industry*, 2 (1921), No. 2. Devitrification and revitrification appear to be reversible. Research may show some remarkable results, the application of which may greatly improve present methods of manufacturing.

NEWS FROM THE FIELD

NEWS FROM MRS. NORTON

Editors Note: A large number of home economics women, deeply interested in Mrs. Norton and her work, have eagerly awaited word from her. The following extracts from her letters to personal friends give us our first glimpse into the new and fascinating field in which she represents home economics.

The passage has been a very comfortable one, a little rough, but not enough for me to mind. Most of the weather has been cloudy but there has been only one really cold day, and two days were quite warm. One day we were in sunshine and snow flurries alternately, but it was warm in spite of the snow. The first three days I did not do much but sleep, a good deal of the time in my steamer chair. Most of the time I have breakfasted in bed, and then read awhile before getting up. The food is very good—real French cooking. Breakfast is the least satisfactory, and there is no danger of my drinking too much coffee! . . .

We reached Paris at about one o'clock and after getting my room at the hotel I went to the American Express Company to see about my reservation to Constantinople. The train goes three times a week, Tuesdays, Thursdays, and Saturdays. Apparently everything is very comfortable on it. It carries a dining car. The route is through Milan, Venice, Trieste, Belgrade, Adrianople. . . .

We reached Constantinople a little after eleven. An hour before we reached there the customs officers came through the train and inspected our hand baggage. They appropriated my typewriter and lunch box and said that I could get them "next day." At the station a nice looking man was waiting for me. He had a car for me, and a driver, who was evidently Turkish, insisted that all my baggage be got through customs that night. He could speak English very well and also knew all the ropes. He said, "if your things go to the big custom house it will take all day to get them out, and perhaps you will never get them. This is not Europe." So we spent an hour getting them, but it paid, and I actually arrived with all my baggage. . . .

This afternoon I had a walk on the hills behind the college where there is a glorious view down the Bosphorus, and where we could see Constantinople, both Pera and Stamboul, and the Sea of Marmora. We could see to the city on the other side of the Bosphorus, Scutari, and the settlement south of it, and behind them the mountains. I cannot get over the thrill it gives me when I realize that I am really looking into Asia. . . .

In my last letter I only got as far as my arrival at the college. Now I must tell you a little about it. You have all seen the picture of the main building, but the picture does not do it justice, for it does not show the setting. It stands on a high hill not quite at the top, so that the hill rises a little behind it. There are many trees about it, chiefly at the side and in front of it. Indeed the top of the steps is about the height of many of the tree tops. Looking down from the steps one sees terraces and beyond them hills, then the Bosphorus, and beyond still the Asiatic shore, then high hills that now are covered with snow. The water is a wonderful blue most of the time, and there are boats going up and down constantly. Many of the trees are evergreen. There are beautiful magnolias and others that I do not know. In the garden into which my windows look, there are almond trees that were beginning to blossom last week, and there is English ivy everywhere, growing along the ground and circling the tree trunks. There are a great many buttonwood trees, but most beautiful of all are the cedars of Lebanon, a wonderful spruce tree, and the umbrella shaped pines.

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The Fish and Fisheries of South Africa. J. D. F. Gilchrist, *So. African Jour. Indus.*, 4 (1921), No. 2, pp. 124-132.

The Manufacture of Macaroni. *So. African Jour. Indus.*, 4 (1921), No. 2, pp. 133-138.

Bulletins of Interest to the Cereal Chemist. *Jour. Amer. Assoc. Cereal Chem.*, 6 (1921), No. 1, pp. 16, 17.—A bibliography.

Rice: Brown vs. White. M. E. Jaffa, *Cal. Bd. Health Mo. Bul.*, 15 (1920), pp. 290, 291.—The composition of the two coats of rice in relation to the whole ration, of which the rice forms a part, is discussed.

The Relation of Ventilation to Respiratory Diseases. J. N. Force, *Cal. Bd. Health Mo. Bul.*, 16 (1920), No. 4, pp. 62, 63. This article discusses questions in relation to school room conditions.

On Child Welfare in Czechoslovakia. Julia C. Lathrop, "*Czechoslovakia Rev.*" 4 (1920), No. 9, pp. 313-317. An interesting account based on personal observations.

Toy Industry. J. Vesely, "*Czechoslovakia Rev.*" 4 (1920), No. 9, pp. 324, 325. The possibilities of the Czechoslovakia toy industry are discussed and something said of the importance of folk toys or peasant-made toys.

The Modern Cottage: Experiments in pisé at Amesbury. C. Williams-Ellis, *Jour. Min. Agr.* [London], 27 (1920), No. 6, pp. 529-534. Pisé, or Pisé de terre is earth hard rammed between movable shutters arranged as a temporary mould. The soil used must have special characteristics, it is said. Some information about the kind of construction and the methods to be followed is given.

Hand Loom Weaving. A. F. Barker, *Jour. Min. Agr.* [London], 27 (1920), No. 6, pp. 561-563. The Textile Department of the University of Leeds will help to develop hand-weaving projects in rural England on request.

Society of Cotton Products Analysts. *Jour. Indus. and Engin. Chem.*, 12 (1920), No. 6, p. 610.

Colloidal Fuel. *Jour. Indus. and Engin. Chem.*, 12 (1920), No. 6, p. 612.

The Wearing Quality of Exterior Varnishes Compared with Their Physical and Chemical Analyses. W. T. Pearce, *Jour. Indus. and Engin. Chem.*, 12 (1920), No. 6, pp. 552-555.

The Causes of Loss in Bottles During Pasteurization and Sterilization [of Soft Drinks and Fruit Juices]. A. W. Bitting, *Glass Industry* 2 (1921), No. 7, p. 71. From "Bottles," May, 1921.

Venetian Glass Beads. *Glass Industry*, 2 (1921), No. 6, p. 137. In this article, taken from Schnurpfeils Review, information is given regarding the manufacture of venetian beads of different sorts and their use, as well as some commercial data.

Glass Resistant to Sudden Changes of Temperature. A. Blum, *Glass Industry*, 2 (1921), No. 2, p. 34. A brief account, including formulas, is given of the new type of glass used in casseroles and baking dishes. "Apparently, the impetus to the large development of glass of this character for culinary vessels was produced by the discovery that lithia when added to the borosilicate glass enabled it to be worked more economically and without lowering its efficiency to resist sudden changes in temperature, and it is interesting to note that this development was entirely American."

Evolution of the Mold Industry [in the manufacture of glass articles]. G. B. Arduser, *Glass Industry*, 2 (1921), No. 2. The development of the use of molds in making bottles, electric light shades, glass dishes, blanks for cut glassware, and other articles, including those used in the home, is discussed.

Devitrification and Revitrification of Glass. J. B. Krak, *Glass Industry*, 2 (1921), No. 2. Devitrification and revitrification appear to be reversible. Research may show some remarkable results, the application of which may greatly improve present methods of manufacturing.

NEWS FROM THE FIELD

NEWS FROM MRS. NORTON

Editors Note: A large number of home economics women, deeply interested in Mrs. Norton and her work, have eagerly awaited word from her. The following extracts from her letters to personal friends give us our first glimpse into the new and fascinating field in which she represents home economics.

The passage has been a very comfortable one, a little rough, but not enough for me to mind. Most of the weather has been cloudy but there has been only one really cold day, and two days were quite warm. One day we were in sunshine and snow flurries alternately, but it was warm in spite of the snow. The first three days I did not do much but sleep, a good deal of the time in my steamer chair. Most of the time I have breakfasted in bed, and then read awhile before getting up. The food is very good—real French cooking. Breakfast is the least satisfactory, and there is no danger of my drinking too much coffee! . . .

We reached Paris at about one o'clock and after getting my room at the hotel I went to the American Express Company to see about my reservation to Constantinople. The train goes three times a week, Tuesdays, Thursdays, and Saturdays. Apparently everything is very comfortable on it. It carries a dining car. The route is through Milan, Venice, Trieste, Belgrade, Adrianople. . . .

We reached Constantinople a little after eleven. An hour before we reached there the customs officers came through the train and inspected our hand baggage. They appropriated my typewriter and lunch box and said that I could get them "next day." At the station a nice looking man was waiting for me. He had a car for me, and a driver, who was evidently Turkish, insisted that all my baggage be got through customs that night. He could speak English very well and also knew all the ropes. He said, "if your things go to the big custom house it will take all day to get them out, and perhaps you will never get them. This is not Europe." So we spent an hour getting them, but it paid, and I actually arrived with all my baggage. . . .

This afternoon I had a walk on the hills behind the college where there is a glorious view down the Bosphorus, and where we could see Constantinople, both Pera and Stamboul, and the Sea of Marmora. We could see to the city on the other side of the Bosphorus, Scutari, and the settlement south of it, and behind them the mountains. I cannot get over the thrill it gives me when I realize that I am really looking into Asia. . . .

In my last letter I only got as far as my arrival at the college. Now I must tell you a little about it. You have all seen the picture of the main building, but the picture does not do it justice, for it does not show the setting. It stands on a high hill not quite at the top, so that the hill rises a little behind it. There are many trees about it, chiefly at the side and in front of it. Indeed the top of the steps is about the height of many of the tree tops. Looking down from the steps one sees terraces and beyond them hills, then the Bosphorus, and beyond still the Asiatic shore, then high hills that now are covered with snow. The water is a wonderful blue most of the time, and there are boats going up and down constantly. Many of the trees are evergreen. There are beautiful magnolias and others that I do not know. In the garden into which my windows look, there are almond trees that were beginning to blossom last week, and there is English ivy everywhere, growing along the ground and circling the tree trunks. There are a great many buttonwood trees, but most beautiful of all are the cedars of Lebanon, a wonderful spruce tree, and the umbrella shaped pines.

From the college to the entrance of the college grounds is about a ten minute walk down a steep hill, and at the foot of the hill is the preparatory school, an old Turkish palace. I think that the college grounds were all part of the palace gardens. The college grounds are walled in with very high walls, and the gates, both at the foot of the hill and on the hill back of the college, are great wooden doors. There are guards about all the time. There is one for this building that I meet when I come back in the evening. Most of the maids and waiters and guards speak very little English, but they all seem to know French. It seems so necessary to have a little French that I have begun French lessons.

The house that I am in is called Barton Hall. The faculty are nearly all Americans though there are a few English and a few natives. . . .

Breakfast here is at 7:30 except Sunday and Monday, when it is at 8. Monday is the weekly holiday instead of Saturday. Luncheon is at 12, tea at 4, and dinner at 7:30. After dinner we go into the drawing room for Turkish coffee and usually chat for a while, so that there is not very much evening left. It is always half past eight when I come back to my room and often nine or later. On the other hand there is a good long afternoon for out of doors or social engagements. It is very difficult to go anywhere in the evening, for we are a long way from town and the tramcars stop running very early, so one must take an auto. Tea is very informal except on special occasions. Every one drops in in work clothes and eats bread and butter, jam, and tea. On the 15th of March daylight saving begins here, and then from tea till almost dinner time it will be light and one can be out of doors. My second day here was beautiful weather, too, and part of it was spent walking, and most of the rest in unpacking and arranging my things. I had a little conference with Dr. Patrick in the morning, and met one of the Turkish graduates who is in the registrar's office in the college, and who we thought might get me into some Turkish homes. In the afternoon Dr. Patrick called on me in my room and that night she asked to dinner Mr. Johnson, who is at the head of the "survey" that is being made of Constantinople. We thought through this I might get entrance into the homes. With all this effort I went into my first native home only this morning. This was a Greek home, and I am hoping to see some more soon. Mr. Johnson asked me to a luncheon of the survey committee my first Monday, and again this week, and I am to go regularly and keep in touch with what they are doing. I met there Miss Phillips of the Wellesley Unit who are with the Near East Relief.

As I wrote, there is no opening for refugee work, as the different organizations have taken that in hand, and are doing all they can. Not that the refugees are really taken care of. Many of them are without work, many are selling any personal belongings they may have at a fraction of their value, and many are suffering all sorts of hardships. We heard yesterday of one general who had a beautiful home in Russia who is trying to earn a living by carving wooden toys, while he and his family are living in one room. There is a man working on our place here who was one of the very wealthy people, and his step-daughter is our maid in this hall. The college has a number of Russians who are working for room and board and 15 liras a month, and are very thankful to have the work. Mr. Briggie says he could get any number of them to come and he could easily use a hundred, if the college only had the money. Does it not seem too bad when the college needs the work done and the people need the work that someone could not furnish the funds? Several of the refugee girls have been given scholarships in the college.

To go back to my own work. Until I can do more visiting I am seeing as many people as I can, and talking with different members of the faculty about the needs of the girls, and planning my courses. It happens that the curriculum committee is just working on plans for next year, and I am in time to have my work go in. Everyone seems interested and promises cooperation, and my courses will be fitted in, in a way that they could not possibly have been if I had come much later. Then I am helping get out some leaflets about the different departments.

This week I have been in two Greek homes, one with Miss Thomson of the Near East Relief, at Arnauthkuay, our village. This was a call on a well-to-do woman who is giving volunteer help for the N. E. R. and was to take us to see the children in the schools. We saw the school house but not the children, for it was a half holiday, but the Greek lady, Mrs. Crestovich, has promised to go with me some other time. She speaks English very well, and talked politics to me. The school was very forlorn, for the school building has burned down, and they were using rooms in a theatre. There seemed no prospect of a new building, for there is no money. Constantinople seems full of ruins. There are a great many fires here and nothing seems to be rebuilt. All the schools seem to be suffering. The Turkish teachers have struck because they have not been paid for four months. Indeed it is a pathetic country now, with no money, no work, and no outlook for immediate improvement. Miss Dodd, who has been here for 37 years, has told me of the wealthy Turkish families whom she used to visit, whose houses have been taken by the English, and who have lost all their money, and now are living in cramped quarters on a pittance.

The other Greek home that I visited was that of Miss Johanides, a graduate of this college, who has been getting her Ph.D. at the University of Geneva. She is a very charming young woman who is working on the "survey," and asked several of the "survey" people to tea at her house. The houses all seem to me a sort of modification of the old Greek and Roman house.

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nearly true. The cold winds sweep down the Bosphorus from the Black Sea, and the warm ones sweep up from the Marmora. On this hill we get the full sweep of the north winds. I can understand why Miss Jones at Cedik Pasha said it was warm here, for that school is on a slope toward the Marmora, protected from the north winds and getting the warm south winds. The teachers here say that they dress more warmly than at home, though it never gets so cold as it does there, for there are flowers blooming all the year round and the English ivy and other vines are not winter killed. . . .

On the 27th of this month begins the spring vacation of ten days. This is at the time of the Greek Easter. There seems to be a good deal of vacation here, for every month there is a "monthly holiday" that means a free Saturday as well as the usual Monday. Many of the girls go home at the time, and the teachers often plan outings. This spring vacation some of the teachers are going to Brusa, and I may join them, for it will give me a little glimpse of Asia, and, perhaps through Miss Parsons at the school there, or through the Red Cross, I may be able to get into some of the homes.

The Third International Congress of Home Economics Instruction, postponed from July, 1921, has been called at Paris, April 18 to 21, 1922. The arrangements for the Congress are in the hands of the French National Committee of which the chairman is Monsieur Champetier de Ribes, 23, rue Bertrand, Paris. The honorary committee is headed by Madame Millerand, the Minister of Agriculture, and the Minister of Public Instruction.

The program, which will be the same as that planned for 1921 and printed in the *Journal* for March, 1921, will include the following topics:

The situation of home economics throughout the world, before, during, and after the war; the position of home economics in the schools and colleges; the relation of home economics instruction to education in the home and to professional education; normal and rural school problems; inspection of home economics instruction; home economics in relation to social problems, such as housing, food, child hygiene, coöperative organizations of consumers, high prices, and food adulteration; and professional training of servants in the home.

The conditions of membership and participation in the Congress will be the same as those described in the March *Journal*.

Although the Easter date is less convenient for Americans than a midsummer one, it is hoped that there will be a representative attendance from this country, and that a good exhibit of American methods,

institutions, and accomplishments may be sent to Paris. The next issue of the *Journal* will contain further information on these points.

Nutrition And Health Classes For Children. Believing that a reasonable approach to the nutrition problem is along educational lines, and one that makes use of the individuals and the agencies already existing in and about the public schools, the University of Iowa has been actively interested in a school program. This work has been planned with the thought that the home economics teacher, the school nurse, the school dentist and physician will cooperate closely in a common program. Classes of children have been organized under the general direction of the Home Economics Department of the University. Closely cooperating in the entire program are the Child Welfare Research Station, the Colleges of Medicine, Dentistry, and Education, the University Observation School, the departments of Public Health, Public Health Nursing, and Home Economics.

During the summer session of 1921 a special offering was made to home economics teachers, school nurses, and other persons interested in the organization and conduct of nutrition and health classes for children. A special course entitled "Nutrition and Health Classes for Children" met daily for two hours. During this period special lectures and demonstrations were given by individuals from the cooperating colleges

and departments. Valuable contributions have also been made by the departments of Physical Education and Sociology.

During the summer, a special worker from the Nutrition Service of the American Red Cross conducted the classes of children who were under observation, and also took part in the general class program. Among the subjects for consideration in the daily class meeting were food and nutrition of the child, scientific measurements of the normal child, sources and significance of the growth norms, charts and growth records, factors concerned in the development and preservation of good teeth, the physical examination, general health habits, physical education, social aspects of the nutrition problem, the organization and conduct of the class, and other pertinent matters.

The following supplementary activities were provided for the students who took the course:

1. The observation and study of two nutrition and health classes which were conducted in the Observation School of the University. (a) The first grade, with 26 children, met twice a week for periods of 20 minutes each. (b) The 4th, 5th, and 6th grade (as one class) with 35 children, met twice a week for periods of 30 minutes each.

2. A weekly round table for the discussion of topics of special interest.

3. Weekly conferences in groups of 3 or 4, for the more intimate discussion of more or less individual problems. During these conferences lesson plans and courses of study were worked out to meet given conditions.

4. Attendance at the weekly conference hour which was held for mothers. The students observed and also assisted by discussing the children's charts with the mothers. Each student was responsible for the charts of a given number of children.

5. Opportunity for home visiting, in the homes of the children for whose charts they were responsible.

6. Scheduled observations, in groups of 2 or 3, of the dental and physical examination of children in the nutrition and health classes.

7. Scheduled individual instruction, and practice in weighing children in the classes and in the making of measurements.

8. Individual responsibility for weekly weighings of certain children, for making their charts, and keeping their records.

9. Opportunity to do intensive work with children in the classes who varied pronouncedly from normal.

When time and circumstances make it possible, students should be given experience in activities, such as: (a) Actual conduct of nutrition and health classes. (b) Speaking to pupils, at assembly periods, on the subject of nutrition and other health habits. (c) Speaking at mothers' meetings, women's meetings, teachers' meetings, on the subject of nutrition and other health habits.

This summer the underweight children were not separated and put into a special class. The whole group received instruction during the regular class period. The children who varied too much from the height-weight norm received special help through outside conferences and home visits.

RUTH WARDALL.

An Experiment In Saving Steps. The Home Management Class at Alabama Technical Institute and College this year agreed that saving time and energy in household operations should be one of its chief aims.

Nabors Hall, the practice house where the laboratory work of the course is done, is an old southern residence with the usual large rooms and few conveniences. The girls live in the house, in groups of four for twelve weeks, each taking her turn as hostess (manager), maid, cook, and host.

The class of the summer of 1920 planned a number of improvements, which were installed by the college carpenter: one small window on the north side of the dining room was replaced by three large ones, a convenient cupboard was built in, between the dining room and kitchen, which opened on both sides; a door was put above the refrigerator, so that ice and milk could be put in from the back porch by the delivery

men; a small table was placed in the pantry with flour and meal cans on a low bench beside it; to the left were put shelves for food supplies and such utensils as would be needed there. The refrigerator was across in the other corner. This made a very convenient arrangement where most of the actual preparation of food for cooking could be done.

The girls timed themselves in the various household operations and got some interesting comparisons. Some showed considerable improvement, but they still found themselves taking needless steps because they "did not think."

We bought a pedometer which each girl wore when she was cook. They were very much surprised to find that many times a girl would walk two miles and a half, or take approximately eight thousand steps in preparing three meals a day for five people. The maid did the dish-washing, so this was not included. Our meals were simple, usually consisting of fruit, toast, and a beverage for breakfast; a salad and sandwiches, or something similar for lunch; and a meat, two vegetables, a dessert, and hot bread for dinner.

The girls soon learned to save themselves. The average became one-fourth of a mile for preparation of breakfast and starting lunch, one-fourth mile for lunch, and one-half to three-fourths of a mile for dinner, or about three thousand steps instead of eight thousand in one day. They found that the pedometer had made them think and thus save useless movements even when they were not wearing it.

GAIL BURFIELD,

Supervisor of Practice House.

Red Cross Cafeteria. Through its low priced, but well balanced, menu, the cafeteria at the National Headquarters of the American Red Cross in Washington has achieved a national reputation. It was started only three years ago, with a patronage of 500, but today its average of 1400 luncheon guests includes eminent politicians, Army and Navy men, and tourists from all parts of the world. The cafeteria has become one of the show places of Washington.

Ruth Cleves, the manager of the restaurant, is a 1916 graduate of Cornell University, having specialized in home economics. For a year after graduation she managed the university dining room at Ithaca.

An idea of prices may be obtained from the following schedule. Soups, five cents; salads, including mayonnaise dressing, 15 cents; vegetables, from 6 to 8 cents; meats, 25 cents; desserts, 8 cents. Desserts include melons, puddings, and pies. Half pint bottles of milk, for five cents, are especially popular.

The cafeteria, during the three years of its existence, has not only paid for itself twice over, but is doing the work of a \$200,000 endowment fund for the Red Cross. Its profits amount to more than \$12,000 a year. This money goes back into the work of the Red Cross. It helps support the program which the membership dollars, collected during the Fifth Roll Call of the American Red Cross, November 11-24, will support. This program calls for service to disabled soldiers, aid for European war orphans, disaster relief, and promotion of public health.

Child Health Demonstration. Mansfield and Richland County, Ohio, have been selected by the National Child Health Council as the scene for unique demonstration of what American communities can do for the most healthful development of their children. The selection of Mansfield was announced after a strong competition among eighty communities which for several months past have striven to obtain this distinction and advantage. It was felt that conditions in Mansfield and Richland County most nearly complied with the qualifications laid down by the Council for the purpose of securing a typical American community.

This demonstration will cover a period of five years and will deal with children of all ages. It will be directed by Dr. Walter H. Brown, formerly health officer of Bridgeport, Connecticut, who will relinquish his present work with the Commission for the Prevention of Tuberculosis in France.

New York State Home Economics Association. The program of the meeting to be held in Buffalo, November 21 and 22, is as follows: Household Arts and the Elementary Schools, Grace Schermerhorn, Director of Cooking, New York City Schools; Discussion, led by Treva Kaufman, Supervisor Home Economics, New York State; Economics of the Household, Martha Van Rensselaer, Cornell University; Discussion, led by Emma Gunther, Teachers College; Field News from the Other Side, Edna White, Director Merrill-Palmer School, Detroit, Michigan; Business Meeting, led by Mary Sweeney, or another officer of the American Home Economics Association.

Cooperative Research on Mayonnaise is being conducted in various Home Economics departments under the direction of Dr. Kenneth L. Mark of Simmons College, with a view to solving some of the vexing problems connected with the making of mayonnaise. This is the first piece of extensively organized cooperative research to be undertaken, and it is hoped that it will help to expedite the obtaining of definite, checked results. Different phases of the problem are being studied by different colleges; thus duplication of effort is avoided. Some of the questions to be answered are: Why does mayonnaise curdle? What is the effect of varying temperatures of ingredients? Just what does happen in mayonnaise making?

Dr. Mark has conducted extensive work on these and other phases of the problem, but there are still many opportunities for investigation. Dr. Mark will be glad to receive any offers of cooperation from colleges which have not already joined in this undertaking.

Project in Demonstration Cookery. During the summer session at Teachers College, an opportunity for field work was given to the students in the class for practice in demonstration cookery. One afternoon each week was spent in a New York City public school, where the students

demonstrated in turn to the mothers who brought their children to the playground. While the babies slept out of doors in the swings, the mothers had a chance to rest and to discuss food in relation to the health of their children.

The Eastern States Exhibition was held in Springfield, this year, the week of September 18th. In connection with this fair the boys and girls work was represented by the Camp Vail activities. This camp is the outgrowth of the projects carried on by the boys and girls, and its activities will bring together some of the newest ideas in demonstration methods. Bess Rowe, woman's editor of the *Farmer's Wife*, and Mary Barber of the Foods and Cookery Department of Teachers College will serve on the advisory board.

EXTENSION WORK

New State Leaders in Extension Work, appointed since June 30: Miriam Haynes, State Leader of Colorado, has returned to her work in the state after taking a year's leave of absence; Lucile Reynolds, formerly of the extension staff of Montana, after a year's study at the University of Minnesota, has been appointed State Leader of Home Demonstration Work of Massachusetts, in the place of Marie Sayles, now State Leader of Ohio; Susan Wilder, formerly of Minnesota, for the past three years home demonstration agent of Hancock County, Illinois, has been made State Leader of South Dakota.

New Specialists in Extension Work, appointed since June 30: Clothing—Edith Mason, Connecticut, Marjie Haugh, Illinois, Azalea Linfield, South Dakota, Elsie Stark, Minnesota, Ruth Fregard, Missouri, Rachel Harris, Assistant Clothing Specialist, Nebraska; foods and nutrition—Bertha Scholes and Rosemary Laughlin, Illinois, Flora Thurston, New York, Margaret Cassel, Missouri; household management—Ida Fra Clark, Missouri.

Conference of Specialists in Health and Nutrition. Specialists in health and nutrition, employed in the thirty-three Northern and Western States extension divisions, have been called together for three regional conferences: Eastern states specialists at the New York State College of Agriculture for the week beginning October 17. Specialists of the Middle West at the Minnesota Agricultural College, St. Paul, for the week beginning October 31. Specialists of the Western states will meet at the time of the annual regional extension conference at Portland, Oregon, February 28 to March 4.

Summer Meetings of Home Demonstration Agents and Farm People were held in several states during July and August. *In Utah*, 949 farm people camped on the campus of the Utah Agricultural College, August 2 to 5, for the purpose of considering state problems in agriculture and home economics. Dr. Caroline Hedger led the work in the study of child care and feeding, and gave especial training to project leaders and extension workers. This is the second year that Dr. Hedger has attended the Utah annual meeting. After the encampment Dr. Hedger made a trip through the state on which she gave instructions to more than 9,000 people. Child care and feeding is the part of the home economics extension program which is receiving greatest emphasis this year. Mrs. E. C. Salisbury of the Women's Section North and West, represented the States Relations Service on the program. Mrs. Rena B. Maycock, State Leader of Extension Work for Women, was in charge of the home economics program.

In New Hampshire, farmers and home makers week was held at the State College, Durham, August 16 to 19. The following organizations cooperated in the conference: New Hampshire State Department of Agriculture, New Hampshire Farm Bureau Federation, New Hampshire Federation of Women's Clubs (Home Economics Section), New Hampshire Parent-Teacher Association, New Hampshire State Board of Health, New Hampshire Horticultural Society, New Hampshire Poultry Growers' Association,

New Hampshire Beekeepers' Association, New Hampshire Potato Growers' Association, Granite State Dairymen's Association, New Hampshire Veterinarians' Association, Federal Board for Vocational Education, County Farm Bureaus, Subordinate Granges. The sessions planned primarily for the homemakers included health and home economics programs, on which were representatives from the public health and Red Cross Organizations from New Hampshire and New England, members of the faculty of the college, extension workers from other states, Dr. Emerson of Boston, Mrs. Ruby Green Smith, Associate State Leader of New York, and Mrs. Ruth Stevens Reed, Clothing Specialist of Massachusetts. As a result of this conference a committee, of which Miss Williamson, State Leader of Extension, is chairman, was appointed to carry out a state campaign against malnutrition. The campaign is now under way.

In Montana, the annual meeting of home demonstration agents was held in the Agricultural College at Bozeman, July 25 to 30. Dr. Caroline Hedger, for the second time, gave the Montana agents a series of lectures on child care and feeding. Mrs. Edith C. Salisbury represented the Women's Section, North and West, of the States Relations Service, and led round table discussions on extension organization problems. Recreation, photography, preparation of illustrative material, fair exhibits, home cheese making, club work, clothing projects, were considered in lecture, demonstration, and laboratory practice.

NOTES

Professor Isabel Bevier has been persuaded to continue as a lecturer at the Southern Branch of the University of California, Los Angeles, during the first semester of this year.

Emma Francis of Battle Creek Sanitarium has accepted the position as Assistant Professor of Chemical Agriculture in the Experiment Station at State College, Pa.

Helen L. Green is organizing and equipping a Home Economics Department in the Polytechnic Institute, Auburn, Alabama.

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THE PLACE OF THE NUTRITION WORKER IN THE HEALTH PROGRAM¹

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The New York Association for Improving the Condition of the Poor, which is engaged very largely in carrying on public health activities, believes that the nutrition worker has a very real contribution to make in the health program. It is not a recent convert, either, in this matter, as evidenced by the fact that it employed the first visiting nutrition worker in New York City in 1907 and has had nutrition workers on its staff from that date to this, its Nutrition Division now consisting of nine workers. The longer it is engaged in health work the more it finds nutrition or, shall we say, defective nutrition playing an important part in disease and sickness, and the more emphasis it is forced to put upon good nutrition as a preventive force.

Tuberculosis and nutrition. Tuberculosis is one of the major factors that we have to deal with in the health problem. We are told by the tuberculosis experts that presumably over 90 per cent of all of us are infected with tuberculosis. Our hope of preventing a breakdown through such infection lies, in part at least, in the possibility of keeping the body in good physical condition, in building up a resistance adequate to overcome the slight doses of tuberculous infection that almost inevitably occur. We have appreciated all along, to some extent at any rate, that good nutrition plays a very important rôle in making this resistance adequate, but the war with its large amount of under-

¹ Presented at the Fourteenth Annual Meeting of The American Home Economics Association, Swampscott, Mass., June, 1921.

feeding has given new impetus to the importance which nutrition plays in the prevention of this disease.

Nutritional defects among children. The A. I. C. P. is dealing in an intimate way with the health problems of a population of 35,000 people, chiefly Italians, in a congested area of New York City. It has, as a part of a systematic effort to deal with the health problems of the children of this area, examination clinics for the examination of presumably well children, that is, that group of children for which there is no provision for medical examinations in the average community. As a result of an examination of a large number of children, chiefly pre-school, we have found that, after defects of the nose and throat and teeth, defective nutrition ranked highest in the number of defects found. Thirty-eight per cent of these children were classified as having defective nutrition. This meant that they showed some or all of the following symptoms: subnormal weight for height and age, poor general musculature, the presence of subcutaneous fat, pale color, redness of mucous membranes. For these examinations the children were stripped, a fact which adds to the value of the diagnosis, since more adequate observation was possible.

One might attack the health problem of this area until doomsday without scoring anything like success unless one recognized that the health problem of this community is tied up with the family food habits. We are confronted with the nutritional problem in our health work in the diet of the mother before the birth of the child. We have it with us immediately after the birth of the child in the feeding of the young infant and its mother. We have been all too prone to think that we can ignore a child's diet after he is two years of age, but we are learning that we ignore it with disastrous results. Bad food habits have their origin here and are difficult to correct later on; but, what is still more serious, they are very likely to have left in their train impaired physical conditions with permanent results.

Teeth and nutrition. Our examining physicians have dwelt at length on defective teeth and we are all of us conscious of the size of the problem which we have to wrestle with in defective teeth. We no longer try to deal with tuberculosis and tuberculous families seriously without attempting to put their teeth in some condition of repair as a necessary factor in the success of our treatment. We are finding that we cannot deal most successfully with defective nutrition in children with decayed teeth and pus producing conditions in their mouths. We have still much to learn, especially we laymen, with regard to the relation between

nutrition and tooth decay, but even the layman is able to discern that our most enthusiastic dental leaders—leaders in whom we have had a great deal of confidence—are abandoning their slogan that a clean tooth never decays, because there seems to be some evidence that tooth decay may have its origin in inadequate diet, or inadequate nutrition. We suspect that even the expert himself feels that there is a pitiful lack of accurate knowledge with regard to the relation between diet and tooth decay and we are encouraged by the fact that some steps are being taken, notably in Boston itself, and in other places perhaps to a less degree, to fill in this important gap of information. Meantime, there is no one, I think, who will deny that if we really want to prevent tooth decay we must work along nutrition lines as well as along lines of cleanliness and sanitation of the mouth. I sat one whole evening, recently, in a small group of dental experts who were considering the essentials of a dental prophylactic program and it seemed to be the consensus of opinion of this group that, if you could do but one thing in a given community looking toward the prevention of tooth decay, you had better begin with educating your community in the importance of diet and its relation to good teeth.

Now, I have been concerned thus far in citing, more or less at random, facts which indicate the importance of the nutritional factor in the health program. Without being more precise and without going into greater refinements, I am sure that I shall have unanimous agreement with me in declaring that attention to nutritional problems must stand out prominently in any successful health program. To overlook such attention is to overlook one of the essential factors. One may not be able to say that, given good nutrition, good health will result, but one can at least say that without good nutrition good health is impossible.

Ignorance of suitable diet the problem. Now, if we accept this statement of the situation, if we believe without reservation that we must perforce deal with nutrition in our health program, what are some of the ways to do something about it? In the first place, let me indicate that each added year of experience in dealing with health problems, among the group of the population in which the income range is lowest, convinces me the more that, even in the lower income range group, ignorance of suitable diet is a more important factor than inability to purchase suitable diet. Poor nutrition is obviously aggravated by inadequate income, but a very high percentage of our nutrition disturbances and defects can be remedied, I am convinced, by educational methods. I am a firm believer in good incomes as essential allies in

the public health field, because good incomes mean, as a rule, better housing conditions and, on the whole, better diet. It is much more apt to mean more adequate housing conditions than it does mean better diet, however, as a considerable degree of ignorance about suitable feeding in families with better ranges of income is all too nearly universal. We must, therefore, continue to press for adequate incomes for workingmen as a means to good health and improved civic and economic usefulness. But let us not forget, while we are urging this, that at the present time lack of income is not as serious a factor in nutritional disturbances leading to ill-health as is ignorance of suitable diet. Education is a slow, difficult, and expensive process, but it is, nevertheless, much swifter, much easier and much less expensive than is the process of readjusting economical conditions. It is a much more hopeful line of immediate attack, and this advantage should, I believe, be pressed to the utmost.

Schools the best medium for overcoming ignorance. But, how shall we educate? Obviously, the school should play a very important rôle in the educational process. If nutritional work does play the part that we think it does in the health and, therefore, the efficiency of the community, then we should not be content with the gains which we have already secured in the emphasis upon this problem in our public schools. A careful examination of the curricula of our colleges and universities would still, I believe, yield very disappointing results, showing, as it would, such a large percentage of college graduates successfully completing their course without anything like adequate serious consideration of the problems of nutrition as they affect every day life. If education is a fitting for life, then is it not clear that we must include in it adequate information and adequate consideration of the problems of diet in their relation to common health and common efficiency? It may even be that it is as important for students to know concretely what Sherman has said about the diet of a child as it is to know the law of the sine and the cosine, or as it is to have correct information as to the evidence distinguishing the paleozoic from the mesozoic period of geological history. Without, however, belittling at all the importance of mathematics or geological history in the college curriculum, I am willing to defend the thesis that the average college curriculum does not give the consideration to nutritional problems that their relation to life warrants. It ought not to be possible for students of colleges to go out from the institution without having dealt seriously with this practical problem.

I speak of the college first, although I realize that the elementary school is of the greatest importance in our consideration, because of the fact that such large numbers of our people grow up to be citizens without getting further than the elementary school, but until we get adequate recognition of the importance of the nutritional factor in our college education, we shall not get it in our high school or secondary education, nor in our elementary education. We have made much progress, it is true, in the use which we have made of our elementary schools in the nutritional educational problem. A larger percentage of the children graduating from our schools each year are knowing at least something about the elements of food problems—what to eat, how to eat, how to prepare it. But we must rely on the special teacher of nutrition, the regular teacher, the medical examiner, and the school nurse to make at least the rudiments of this information universal. The next generation will be a healthier one because of the fact that this generation of school children has more knowledge of this kind than the preceding generation. But this process which has begun so well must be put ahead a notch each year for some years to come, if we are to realize the full advantages and possibilities of food education through the schools.

Institutions other than schools important. This is the greatest educational opportunity and this should have first emphasis. There is also a very definite place for the nutrition worker in the public health program in the assumption of the responsibility of guiding the nutritional work of hospitals, sanatoria, children's institutions, Boy Scout, Girl Scout and other camps, hotels and restaurants. There are now numerous workers in this field, but the opportunities in this work have not, in my judgment, been anything like fully realized. The educational possibilities are very real and considerable, and the development of more workers in this field with still larger vision and capable of real leadership in thought and action will make these agencies contribute an ever increasing share in this process of overcoming nutrition ignorance.

The function of the field worker. There are, however, other important supplementary means, of educating the public to the importance of nutritional factors in health problems, that should be pursued simultaneously with our efforts to secure additional educational work through the medium of our schools and universities, and through our hospitals and other institutions. We are making rapid progress in this country in the direction of carrying health education into the homes, to reach the child of pre-school age, to reach parents, and to deal with many problems which the school as such cannot deal with. The number of

voluntary health organizations is rapidly increasing. The total volume of work being done by voluntary health organizations is increasing in an even greater degree and the work that is undertaken by municipal, state, and national health authorities is increasing in a like manner. The field workers, whether it be in rural district, in small community, or in our larger cities, are increasing in numbers with great rapidity. They are being recognized as the hopeful medium of successfully carrying educational health work into the home in such a practical way that it affects the daily life and routine of the individual family and the members which make it up. The field worker may be a trained nurse, a practical nurse, a lay-visitor, a nutrition worker, a visiting school teacher, or some other kind of field worker. Obviously, here is at once an opportunity and a responsibility for the nutrition worker. It is clearly our business to make the consciousness of the importance of this problem a part of the equipment of every field worker of whatever nature, and we should not be content with that; we must, in other words, follow up making them conscious of the problem by providing them with the necessary tools in the shape of the essential information which will make it possible for every field worker to be an active educational agent in the nutritional field. Wherever, therefore, there is any body of field workers, the nutrition worker should be recognized as an essential part of such a staff. If the staff is very limited, it may be that the nutrition worker per se will be necessarily confined to one competently trained supervisor. In this case, this nutritional supervisor would make it her business, by group talks, by daily contacts, and by intimate working with each field worker, to put each worker in possession of the necessary knowledge and methods which will make it possible for her to be an effective instrument in nutritional education. This kind of counseling supervision would, of course, be supplementary to and not interfering in the slightest with the technical, professional supervision; that is to say, if the field workers are a group of nurses, for example, the supervising dietitian would act in the capacity of an expert counselor in training and supervising the staff in so far as their work should relate to nutritional problems. She would work in the closest degree of cooperation with the nursing supervisor herself and would be an able ally to the nursing supervisor, making her own work function more effectively. If, on the other hand, the staff of field workers is sufficiently large, it is more than probable that trained field workers who would give attention to nothing but nutritional problems would be advisable, especially if the field force, whatever it may be, is devoting itself to preventive health problems.

This is exactly the case in the staff of the A. I. C. P. In one of the local pieces of work which this organization is doing, it has some twenty field workers. Six of these are trained dietitians. All of the staff are working on preventive health problems. An effort is made to make each field worker, be it the nurse, social worker, or dietitian, a medium of nutritional education in the individual home, and the nutritional supervisor works with this end in mind with the nursing supervisor. But some families and some individuals present special nutritional problems. The nutrition worker as such assumes full responsibility for these problems which require more intensive dealing with nutritional factors. In this way, we believe we have welded together into an integral whole a field staff that is dealing effectively with preventive health problems, and we are perfectly certain that this combination of staff is more effective than would be a staff made up either of all nurses or of all dietitians.

This, it would seem to me, offers the most hopeful suggestion for fixing the appropriate place of the nutrition worker in the public health program. The adaptation of this plan to varying conditions and varying circumstances in the public health field, wherever there is a staff of field workers, presents rich opportunities for dealing with the health problem in a well rounded way and in such a way that the nutritional aspects of it assume something like their relative importance.

The physician's rôle. The physician, of course, should not be ignored in such situations. My remarks have assumed the physician as the corner stone of the health program, the function of the trained nutrition worker corresponding quite largely to that of the trained public health nurse. The physician is indispensable in examining children and determining what children are deviating from the nutrition normal and in advising what is needed. The main task of getting over the actual educational problem in the home will obviously rest primarily, however, on the nutrition worker.

Responsibility of the nutritional training school. It should be added, however, that the nutritional training schools themselves have not as yet been able to plan adequately to provide the public health field with workers fully trained for this kind of work. In the first place, it has not been possible for them to give anything like adequate field training of any kind to nutrition workers. In the second place, the cases are still more rare where a field training has been worked out in such a way that much attention is given to individual family problems as such. In other words, a nutrition worker for educational nutritional work in

the individual home is not prepared for successful work no matter how thorough may be her theoretical training, even though that theoretical training include adequate consideration of individual family problems, until she has had some training and experience in wrestling with actual, practical field problems that go with visiting and working in the family of Mrs. O'Gorman and Mrs. DeLucia. This kind of training is all too relatively rare. It is absolutely essential for nutrition workers contemplating field work and would at the same time make the work of nutrition workers in public schools more effective.

Summary. If, now, in conclusion, I were to sum up this brief paper, I should say that the nutritional factor is a large and essential factor in the public health program. It has not yet received the recognition, however, in practice, which its importance suggests. Its chief obstacle to overcome is ignorance and its function is, therefore, largely educational. The school, including the elementary school, the secondary school, the college and the university, is or can be the most important instrument for overcoming universal ignorance; the hospital and special institution is another potential though not fully realized educational force, but the important supplementary agencies of public and voluntary health organizations must not be overlooked as serious factors in this situation. The nutrition worker should be an element in every staff of teachers or of field workers, and our training schools must see to it that more adequate provision is made for field training of nutrition workers with this in view.

PHYSICAL AND BIOLOGICAL CHEMISTRY IN THE SERVICE OF HOME ECONOMICS

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Home Economics education, in its gradual emergence from the condition of a dim social idea into an orderly body of applied science and art, has passed through several uncertain stages when the whole structure seemed toppling down to the trade school level. Whatever importance the trade school training may assume in certain phases of home economics education, it seems now to be assured that, in the higher

institutions, the university idea must prevail in the main, and that, as in agriculture, the foundation and all the superstructure of work along these lines must be chiefly the fundamental sciences and their applications. There need be no longer a question as to the adequacy of the latter without the former, in spite of the plausible and popular uproar that demands practical applications instead of theory, from the first moment that science is approached.

The scientific foundations of home economics. The fundamental sciences, in home economics as in many other fields, are physics and chemistry first, and next biology, unless indeed we go with the modern mechanists far enough to see in biology only a more complicated chemical dynamics. Home economics in all its phases deals with life and living: origin, nurture, preservation, and enjoyment. It must deal with things in so far as things are essential to human life: food, clothing, shelter. It must deal with forces, in so far as forces touch human living: light in the house and street; heat as a product of the human body, or as a means of comfort in the house or in the preparation of food; electricity as it furnishes light and heat for these purposes, and power to save the labor of human hands; and, of course, chiefly the free energy of substances as it controls the direction and extent of the reactions studied, and the production of other forms of energy. We are thus involved at once with the ideas and the materials of physics, chemistry, and biology. Of these three divisions of the great body of science, we may make two combinations, both of them classed usually under the division of chemistry, which shall contain practically all the materials, theories, and more than anything the assumptions, which we need to build up that increasingly homogeneous collection of the scientific teachings contained in *home economics*. These two combinations are physical and biological chemistry.

It may indeed be going too far at present to include all the foundations of the scientific aspect of home economics in these two divisions of chemistry, but it is easy to foresee a day when this assumption may be justified. Those portions of the subject matter which are now classified under the headings physiology, biology, and bacteriology, are concerned primarily with the dynamic phases of those bodies of learning, and hence may readily be included in the physico-chemical field. For example, we are interested specifically in the physiology which deals with secretion, digestion, absorption, excretion, and metabolism. But secretion, absorption, and digestion have resolved themselves into problems of colloids, osmotic pressure, surface tension, and catalysis. The action

of enzymes is reduced to a question of mono- or poly-molecular speed of reaction, hydrogen ion concentration, chemical equilibrium, and mass action. Marshall, Henderson, and Loeb, in their recent work, make contributions to physical chemistry almost as much as to physiology.

The study of metabolism is of course the function of biological chemistry, perhaps its most important if not its sole cause for being. In home economics we are concerned also primarily with the metabolism of man, and in particular with his metabolism in its relation to diet. The pathology of metabolism is quite as interesting to us as to the medical men, for we are continually on the lookout for credible connections between the character of food and conditions of health or disease, or even of shades of well-being. A knowledge of the causes and cure of scurvy, beriberi, and pellagra are part of the mental equipment of every student of dietetics. The confused condition of the biological chemist's information on the metabolism in rickets, osteomalacia, anemia, and gout is reflected in our tentative dietetic recommendations for the treatment of those diseases.

There is beginning to be apparent to the home economics investigator, interested in dietetic therapy, a distinct field for research covering the questions of the effects of varying methods of food preparation upon ease of digestion, as well as upon certain of the metabolic disturbances. Sporadic evidences are accumulating that other diseases than those commonly ascribed to diet deficiencies may be amenable to dietetic treatment. The lately published work of Dr. Ralph Pemberton concerning the rôle of carbohydrate feeding in the causation of rheumatoid arthritis, if confirmed, may be cited as an example. Unfortunately, not many home economics departments in the universities are yet accustomed to coöperate with the medical schools and hospitals, so that the opportunity for the prosecution of work in this fascinating field is limited.

With this variety of application of biological chemistry may also be classed experimentation in the accurate feeding of infants. It may be difficult to say wherein lies the dividing line between the chemist of the home economics department, interested in metabolism because she must recommend practical feeding measures, and the chemist of the physiology department or the research institute, interested in the same field because of the exalted curiosity of pure science, or the chemist of the medical school, who must be ready to manufacture therapeutics for his practicing brother. In the artificial feeding of infants, the diet specialist finds a well-tilled field ready for the sowing of the seeds of

public education. In this, as in diabetes, is exemplified the meager development of the theme of quantitative feeding. She is now seizing upon the opportunity of applying those methods worked out by the biological chemists to the diagnosis of cases of disordered digestion and metabolism in infants, and to the alleviation of such conditions through change in feeding. It is her function, as a teacher, to reach the numerous borderline cases of this kind which are never reported to the physician. She may also occasionally be found capable of offering technical assistance to the practitioner in these matters.

But it is in the field of the normal nutrition of growing children and adults that the home economics specialist and teacher finds the richest rewards for her study of biological and physical chemistry. The fascinating mysteries of the intermediary metabolism of the foodstuffs, the creatinine and creatin quandary, the sulfur and nitrogen partitions, are important questions in her mind, because their solution may affect the prevailing dicta as to feeding. Karl Thomas' and Hindhede's work, as well as the experiments by Osborne and Mendel, Folin, and McCollum, are most vital to home economics because their reconciled conclusions may point the way to a rational protein proportion and vitamin content in the every-day meals of the people. Such applications of these and similar findings to the feeding of the nation, as suggested by Max Rubner in his paper before the International Hygiene Meeting in 1912, must make up the content of our home economics nutrition courses, if they are to fulfill their explicit social purpose.

The results of calorimetry, direct and indirect, are based upon the physical and chemical principles expressed in the first and second laws of thermodynamics and the law of definite proportions. The determination of the food expense of work, of the stimulating expense of food, called by Rubner the "specific dynamic effect," of the energy yielding value of foods, are all dependent upon these same laws. The dietitian who must interpret these results in terms of the serving of every-day meals in the home and the institution cannot do so intelligently unless she is familiar with these fundamental laws of physical chemistry. For rule of thumb applications are quite as unsatisfactory in the home economics world as in the medical profession, and of late perhaps no more common.

A plea for research in the home economics laboratory. The home economics investigator should now begin to make her own particular contribution to this body of information collected under physical and biological chemistry, and connecting the food of man with his physical salva-

tion. This contribution is partly a more extended application of well known facts to practical feeding, and partly original investigation of: (a) chemical and physical changes brought about in foods by variations in cooking processes, as well as (b) the more numerous digestion and metabolism experiments concerned with the same changes. The defect in our calculations, due to the fact that practically all our data as to food composition applies only to raw foods, has been only partly remedied by such work.

Wherever this spirit of original contribution is making its modest beginnings, the principles and the methods of physical and biological chemistry are continually resorted to, as the means of attack. The alignment of four simple studies of this kind carried on by students at the University of California may be used to illustrate this point.

1. An investigation of the conditions which control the amount of absorption of fat by fried foods. In attempting the solution of this problem the technique of cookery was needed for the formation of a suitable constant dough for the doughnuts used as the specific fried food; the technique of quantitative analysis in the sampling and fat extraction of the raw and cooked material, and in the determination, before and after frying, of the physical and chemical constants of the four varieties of fats used. Some of this work has been published.¹

2. The isolation and purification of certain proteins from a certain variety of California almond. The procedure of the biological chemist, in this case chiefly that of Dr. T. B. Osborne, was imitated in the preliminary work of fat freeing, extraction, and precipitation. The ultimate aim of this study is the preparation of pure almond protein to be used in feeding experiments similar to the work of Cohnheim, Kauffman, and Thomas. Some results have already been published.²

3. The relation between certain controlled conditions and time of roasting and the loss of nitrogenous extractives in beef.

The relation between weight, surface, oven temperature, kind of pan, degree of cooking, and loss of total weight, of fat, and of nitrogenous extractives were determined by the use of the usual biochemical methods of analysis. The calibration of thermometers used, and determination of heat conduction by various metals are examples of the use of physical methods.³

¹ Morgan, A. F., and Cozens, E. R.: *Jour. Home Econ.*, 11 (1919) pp. 394-402.

² Morgan, A. F., and Heinz, A. M.: *Jour. Biol. Chem.*, 37 (1919), pp. 215-222.

³ Nelson, P. Mabel: Thesis, M. A., University of California, 1916.

4. The comparison of the Van Slyke-Bosworth titration method for the acidity of milk with the electrometric measurement of hydrogen ion concentration in milk. The progress of lactic acid production was measured by both methods every day in samples of milk kept at two different temperatures—ice-box temperature, 2 degrees C., and “cooler” temperature, 15 degrees C. In this case, physico-chemical methods were used exclusively. The titration of these samples with the hydrogen electrode in the manner described by Professor J. H. Hildebrand⁴ has shown some interesting phases of milk souring.⁵

Similar problems might be multiplied almost indefinitely.

So dependent is the development of the food phase of home economics upon that of biological chemistry that it is frequently a matter of delicate adjustment to decide in which field a given subject or investigator may be said to belong. If it is possible to speak of an application of a science which is itself an application, then the human nutrition work in home economics is an application of biological chemistry. It may be more academic to accord home economics food work the honor of constituting a single division of biochemistry, that is, the division Foods and Nutrition. The term nutrition alone apparently does not convey the entire content of this phase of home economics, for nutrition concerns itself solely with the food that has been ingested. Home economics is equally concerned with the processes undergone by that food in its culinary preparation. The army organization during the war recognized the importance of this division by establishing a Food and Nutrition Division of the Medical Department of the army.

After all, the social purpose of home economics education is of vastly greater importance than its technical development. This new phase of education came into being in response to a social and economic need to which biological and physical chemistry can never minister. If we continue to see the departments of medicine train men in the technical work of nutrition and metabolism, as well as make the therapeutic and hygienic applications of their results, the scientific development of those subjects will continue to progress favorably. But the widespread and continuous use of these dicta among the people can be brought about only by the persevering and universal training of young women. In the universities we must develop critical and penetrating thoroughness in the leaders of this movement by means of the technical work of physical and biological chemistry applied to feeding problems.

⁴ Hildebrand, J. H.: *Jour. Amer. Chem. Soc.*, 35 (1913), pp. 847-871.

⁵ Mills, Margaret H.: Thesis, M. A., University of California, 1916.

THE HOME PROJECT AS A METHOD OF TEACHING HOME ECONOMICS

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The Home Project as applied to Home Economics Education may be defined as a piece of work to be done outside of school hours directly related to the subject matter of the course of which it forms a part. This piece of work should embody many of the principles of the subject taught, should present a genuine need to the student, or a problem to be solved, should involve a specific plan of procedure, should include a report of details, and should be supervised. It may be further defined in the terms of: (A) Objective, which is the contact of the student with home problems under conditions as nearly normal as possible, for the purpose of supplementing the school's instruction. (B) The place, the student's own home (preferred), or other homes, or places approximating home conditions. (C) Characteristics such as: 1. Genuine need, apparent to the student. 2. Student's preparation for attacking the problem. 3. The problem to be solved should have the following educational values: (a) standards of manipulation, (b) initiative, (c) managerial ability, (d) results which can be evaluated.

From this explanation and results attained so far by the use of this method, the advantages may be stated as follows: First, it presents a most ideal way in which to teach home economics if we desire to have our teaching function immediately, and bring about worth while results; second, it furnishes a splendid way in which to teach the profession and vocation of homemaking (if that is our desired result); third, it brings about a definite appreciation of the subject both to the teacher and student; fourth, it permits the use of the real equipment, "the home," in place of our more or less artificial laboratories at school; fifth, it brings the teacher in contact with the problems of the homes in the community and then she may plan her course according to the needs she finds; sixth, it offers the opportunity for closer coöperation between school instruction and real life problems in the home and community.

From the educational standpoint, the home project method meets the most important work of education, which, we are told by several educators, is "the deliberate forming of useful habits."

It seems that many home economics teachers have been trying for a number of years to bring about such results as this method has

accomplished. Then why, as teachers, should we not investigate the method, and at least test it out if at all possible in our schools?

The principles involved in a home project, as I see it, are simple and workable. First, the project may grow out of the instruction given at school, or parallel it, or the instruction may grow out of the project. The latter has not been used to such a large extent as the former. Second, the place for the home project is the student's own home. If this is not possible other homes may be used, or places approximating home conditions, such as a hospital, school lunch room, day nursery. Third, the amount of time required for a home project depends largely on the character of the project to be solved. A number of states have agreed that an average of three hours a week extending over three to six months, or the entire school year, or the use of summer months alone may be used. Of course this does not mean that one project would be continued over this time unless it was one of extensive solution, but a number may be solved. If the summer months are used, it involves a twelve-month teacher; this has many advantages to the community.

In solving the project, it is realized that time means practically nothing; it is the interest of the pupil in the solving of real life problems, by the pupil, that counts. However, to evaluate results and reach standards, some time requirement must be adhered to. This time requirement should never be imparted to the pupils, for it has been found in many cases that time is the only thing for which the pupils work. The approach to a home project is possibly the most vital part of it. In order that the project may count in the life of the pupil it must be one of interest to the pupil. Therefore, the teacher must be intimately acquainted with her and must know the home and home duties of the pupil. In order that the pupil may develop initiative and solve the problem, she must be properly supervised by the teacher through home visits; therefore the teacher must be admitted to the home.

The first approach, that of being intimately acquainted with the pupil, will come about through the work in school. The second and third, that of knowing home conditions and entering the home, will probably be more difficult to accomplish. The teacher should make a survey of the homes in the community, no matter whether the home project method is used or not. This will enable her to build her course accordingly. By giving a tea or party, especially inviting the mothers of the pupils, and at this time talking over the home project, she can thereby familiarize the mothers with it; this will then give the teacher an opportunity to call in the homes of the girls, and further her knowledge of the home conditions and of the problems in that community.

Mothers' meetings or clubs may be used for this approach in the home, or a luncheon or supper served by pupils to different groups of mothers may be used. After this approach has been successfully made by the teacher, there will be practically no difficulty in making a selection of the project rightly fitted to the pupil.

A conference with each pupil should be held and a project selected with all the above points in mind. The purpose or aim, scope, plan for procedure, and tentative results should all be talked over with the pupils. An outline carefully evolved by pupil and teacher should be drawn up for the use of both. The teacher should watch carefully, so that the pupils will not depend too much on the outline worked out in the beginning. It should be enlarged and worked over, as the project progresses.

In order that the pupil may successfully solve the problems and progress, the project must be carefully supervised. This supervision may be done through home visits, conferences, reports weekly and final, and social gatherings at school and in the homes of pupils. The amount of supervision given by the above methods depends on the type of projects, the progress of the pupil, home conditions, and number of pupils working on projects.

Some states have found it best to have a weekly conference and report from the pupil, and a home visit once a month. Too much stress should not be laid on reports, but some system is necessary to carefully evaluate results. The number of projects one teacher can successfully supervise is still a debated question. Some states have found that one teacher can supervise a maximum of 40, others a maximum of 15.

The question of credit for home project work has not been so clearly solved as some other problems connected with it. Most teachers who have worked on this problem feel that some credit in addition to the school work should be given for the project. However, this additional credit should be added to the credit given for school instruction and should not be recognized as a separate count.

The types of home projects to be carried out by the pupils should be real home problems and may be classified as simple and complex. If the instruction given is that of a well rounded out course in homemaking, as it should be, whether of grade, high school, or college rank, the student should then work out projects in all phases of homemaking.

The age and the student's preparation for attacking the project must be considered.

A project may be simple or complex to a given pupil according to her background of experience. A simple project may be the preparation of some part of the meal, as the vegetables and fruit, or salads, desserts, meat, or potatoes, or a simple breakfast or a simple supper, studied from the family needs as to nutrition, cost, and efficient use of time. The preparation and planning of a dinner or three meals a day meeting the family's needs, redecorating and furnishing a room, or keeping the family accounts would be a complex project. The care and repair of the girl's own wardrobe may be a simple project; while the care and repair of the family clothing, or household linens, would be a complex project.

The teacher must be the judge as to when the project is finished, and whether the pupil has successfully solved or worked out the project.

Time, mere working, reporting, have very little to do with the real solving of the life problems in the end, and, as always, it depends on the teacher to successfully use this method.

I am afraid some are asking, "How can we as teachers of home economics in grades and high schools use this method, with our present organization which consists of a heavy teaching schedule practically all day, and the handling of as many as 100 or 200 pupils a week?" The answer is, of course, that the method can not be used under such conditions. Is it a wiser procedure to have more and better trained teachers, so that we may use this method to gain our desired results, than to continue with our present plan of reaching large numbers of pupils, giving some meager knowledge of some phase of home economics, and hoping that at some future day they will have an opportunity to receive more training? It is realized that it will take many years to bring into general use such a method, but I believe the method should be used now in many small schools, and may be used to some extent in some of the larger junior high schools.

It is the plan in many of our large junior high schools to give as many phases of home economics as possible each year in the allotted time. Each phase of the subject is taught by a special teacher. This plan is excellent, for no matter when a girl may drop out of school she has had some training in the all-around ideas, and not alone in one or two phases of the subject. In order to draw together all these various phases, and give them their proper use and relationship in the home, the home project method may be used in the ninth year. In many of these schools the equipment merely consists of foods and clothing laboratories; the home project would give us a natural setting for such

teaching. I also believe the home project could be used to an advantage, when amount of time given to home economics is reduced to such a minimum in school that only the fundamentals may be taught, with no time for practical work. Of course it would be necessary to have well trained teachers in charge of such work, teachers who have a vision of the entire subject.

REPORT OF THE SOCIAL SERVICE COMMITTEE

This report, organized from material presented by the Social Service Committee at the Annual Meeting of the American Home Economics Association at Swampscott, is submitted by Lucy Gillett, Chairman, as follows:

We already feel the need of special training for those who are going into Social Service work, but the work is as yet too new for the ideal training to have been evolved. The Social Service Committee felt that, during this formative period, those who are in the field might help to shape this ideal by telling where they have felt the need of more training to make them better fitted for their various duties. With this in mind, the Committee wrote to those who are known to them to be doing nutrition work in the social field, and have summarized the replies.

Invariably the answers have indicated the need of one of three, or a combination of the three following points: (1) Special methods which should show how to explain the application of scientific facts in a practical way to those less fortunate in educational opportunities; (2) a social point of view, or a better understanding of conditions in homes where the economic factor is very keenly felt, and a knowledge of the customs of various nationalities; (3) a better understanding of the underlying factors of defective nutrition and other diet diseases. The following summary of replies received from people in various parts of the country serves to illustrate these three points.

Reply after reply bears out the thought that social service work has a big problem in convincing and educating the untrained mind. One person writes: "The problem that has given me most trouble is how to get the parents to realize the seriousness of the undernourished child and to take necessary steps to correct conditions. Mothers persist in saying, 'Johnnie won't never be big and strong and no food will do it for he takes his small stature and peaked looks from uncle Bill.' 'I have always lived this way and I am strong and I guess it will be all right for Harry.' 'Tony won't eat oatmeal. You don't like it, do you, dear?'" This writer says that, although she is grieved at the ignorance of the mothers she is still more surprised to find how hard it is to make mothers conscious of the importance of well-known facts, and how difficult it is to get them to follow instructions. All those who have been working with these unfortunate women realize that the method used is quite different from that employed in teaching students. The student has been taught to follow instructions or to suffer immediate consequences; many years may elapse before the woman in the home will feel the ill-effects of neglecting the advice and council given. The student in the class has been trained to analyze a situation or to accept established facts and to

follow authentic rules; the woman in the home has been trained chiefly by tradition and experience. It is not only a process of educating alone, it is a problem of reconstructing long established habits.

Since child discipline is one of the most serious factors in malnutrition, social service problems involve an elementary knowledge of child discipline. The problem is complicated by the indirect method which must be frequently used. While nutrition work may be done through the mother or child directly, more often results must be accomplished indirectly through the mother, father, brother, or sister, or some friend or relative. It has been necessary to work out methods appropriate for the problem, and there is little doubt but that training in method for those going into the work would keep many from discouragement, make the work more effective, and save the work and themselves from much unfavorable comment. This would advance the work, and increase the health and efficiency of the community more rapidly.

Further reports, on the method of work and success in getting facts over, state that many cooking processes, as taught in our training schools, are too long and require too many utensils for practical use in homes where there are six or eight children, few utensils, less money with which to buy more, and only one pair of hands to do the work. Methods for the serving of meals have been found to be too complicated and lengthy for this same type of woman.

We often hear and are forced to acknowledge that a practical housekeeper may get better immediate results than a person well trained in theory but with no experience in social work. The methods of the practical woman are suited to conditions. There is a general feeling that the workers from the majority of our home economics courses throughout the country have not had enough training in the preparation and planning of inexpensive meals. Although the nutrition social worker realizes the need of giving in our training schools such methods as will fit the average, she wishes it were possible to teach the girls how to modify the average to fit the conditions below the average. The general plea is for more simplicity even for the average home, with a practical experience in putting theory into its simplified form; not less theory, but a more practical theory.

Another letter says: "All that pertains to the preparation of food is vital in the building up of family efficiency. To have proper food it must be cooked. To be cooked, the stove must be in proper shape. Stoves at best in many of the homes are poor but the worker should know how to make the best use of a poor article. One day one of our workers explained that Mrs. H's stove was 'no good' as she could not heat the oven. All that was needed was regulating drafts and dampers, but constant use of gas and electricity at school had not given this worker the proper background for meeting the situation. She lost influence with the family as well as with her co-workers." The families with whom social workers come in contact have not had and will not have for some time to come all appliances that indicate progress.

Those who have had experience in social work feel that home economics people going into families need training in case work. With this point of view there comes a definite conception of conditions and problems that are to be met. The most successful worker is the one who has the attitude of getting from a family as much as she gives, but this is a rare gift. It may often be acquired through training. Social service problems would become less difficult and more quickly remedied by introducing courses into the curricula of colleges and universities, whereby home economics students might work among people of very low incomes and where low standards exist. "There should be a course including a study of family life among wage earners. Budgets based on actual facts should be worked out for families on the border line of dependence. Those in the field realize very keenly how much harm may be done through a lack of understanding of home conditions." As one letter says, "Often a worker does more harm than good by antagonizing the family through a disregard of their personal and religious scruples, without even being aware of it, or through lack of appreciation of the difficulties under which the family is living or of their struggles

to exist. Those going into social service work should have some knowledge of racial habits and religious customs as well as food habits." To try to teach a Jewish family to use milk and meat in the same meal, or to cook them in the same dish is sure to meet with failure. Equally sure to meet with failure is the person who does not see the economic problem. One worker, who was sent to help a poor Italian woman to feed the undernourished children, began by saying genially, "I am going to tell you the secret of making use of your surplus cream." Whereupon the little girl, who was acting as interpreter, grabbed her mother by the hand and said, "My God, this ain't no place for us. She must think we are Asterbilts."

The following extract from one letter expresses the sentiment of them all: "It is most essential that the student have experience in field work to bring her into direct contact with the home in order to get a more comprehensive idea of what the needs of pupils are, thus enabling her to give in classes what will carry over into homes. I feel that a social service dietitian should have from three to six months of field work before graduation. Those in the field as they look back feel the disadvantage of inexperience. Both for the sake of the family and the worker they strongly urge the introduction into college and university curriculum such courses as will enable those going into field work in nutrition to know how to adjust the subject to families of varying incomes and nationalities."

The beginner often looks at nutrition in a narrow sense as confined to food alone. When a worker gets into the field she finds she can no longer deal with food without other health habits. In order to give food a chance to do its maximum amount of work there must be a proper amount of sleep, rest, exercise, fresh air and sunlight, and the work of the nutrition worker is not complete without proper emphasis on the establishment of such habits as will insure these. A neglect of this consideration is brought out in this letter from the supervisor of nutrition work in one of the social organizations, who writes: "Home economics students come to us with insufficient instruction in personal hygiene, or if they have had the instruction they frequently fail to coordinate it with nutrition. From our point of view, a knowledge and an application of personal hygiene is just as necessary as a proper knowledge of food."

"Oh, if I only knew about the malnourished child and how to treat him," is another cry. "We are mighty glad to have studied so carefully the normal diet because we feel that this is fundamental, but we must know more about the child that needs special attention. At first I felt that my knowledge and judgment were self-sufficient in dealing with diet in all cases, but gradually I learned by experience, accompanied too frequently with disaster, that I must work hand in hand with the doctor. There are too many abnormal conditions, in which factors other than diet must be considered, to risk working without the constant advice of a physician. The nutrition worker should have a better understanding of symptoms of abnormal conditions and more practice in working in cooperation with the doctor."

Another worker has felt the keen need of working not only in cooperation with the doctor but with every other person interested in the family. In one instance there were three people visiting one family, all giving different suggestions. By getting in contact with the other two people they saw that the nutrition worker could do for the time being all that needed to be done, and so the problem was left in her hands. In some cases, it is found that the work can better be accomplished by one of the other visitors in the family, and the nutrition worker withdraws. Cooperation is essential in any event, and it is very important to understand the place of the nutrition worker in the public health field.

Another very important point too often overlooked is experience in record keeping. This helps to analyze results. The nutrition work of today needs facts to present as arguments for the furtherance of the work. Much good work is done without being appreciated because nobody knows about it and nobody knows about it because it is not presented in the right way. If the good work that is being done could be analyzed and presented in a telling way, the importance of the work would be more rapidly appreciated. May there be more practice in the keeping of records and the studying of results!

We are all feeling the need of better teaching methods for the untrained minds; for a better understanding of home and racial conditions; and for more experience in working with the physician and in dealing with the malnutrition problem. We are looking forward to the time in the very near future when those coming into the field will not have to go through some of our experiences but will come prepared to do the most effective kind of work from the start.

REPORT OF THE REGIONAL ORGANIZATION COMMITTEE

This report was submitted at the business session of the Annual Meeting, at Swampscott, by Mildred Weigley, Chairman, as follows:

The Regional Organization Committee has endeavored to push the idea of state organizations, with national affiliation, through the members of its committee who are each carrying responsibility for a region. The results of this work up to the time of the report show a constantly increasing interest on the part of practically all the states and a keen desire on the part of some to make the state organizations with their national affiliation a means of increasing state home economics interests and at the same time promoting a strong, unified national organization.

Up to the time included in this report (June 15, 1921) the organization work has proceeded as indicated by the following summary:

1. Number of regions: Six—Eastern, Southern, Central, West Central, Pacific, Canadian.
2. Number of states having completed affiliation: Two—Minnesota, Montana.
3. Number of states ready to complete this affiliation: Three—North Carolina, Texas, and the New England States.
4. Number of states which have asked and received affiliation blanks other than those listed under 2 and 3: Four—Alabama, Nebraska, North Dakota, Oklahoma.
5. Number of states which have sent in a five dollar affiliation fee (old basis): Two—Arizona, Utah.
6. The following states are either in the midst of deciding the question of affiliation or will bring up the matter at a definite time indicated to the committee:

Eastern Region—New York.

Southern Region—Florida, Alabama, Tennessee, Mississippi.

Central Region—Illinois, Indiana, Iowa, Ohio, Missouri, Wisconsin.

West Central Region—Kansas, Nebraska, North Dakota, Oklahoma, South Dakota.

Pacific Region—Arizona, California, Oregon, Utah, Washington.

It is anticipated that the months of October and November will see a large number of states with their state organizations completed.

FURTHER DATA ON PURCHASING HABITS¹

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The survey of purchasing habits constitutes one phase of the work started nearly two years ago by the Standardization Committee. Data were collected by means of questionnaires, and a report of the findings for one part of the investigation, service dresses, was made at the last annual meeting of the Association.² The present report gives further data concerning purchasing habits, and presents a summary of the material included in the five other sections of the questionnaires, which were not discussed in the earlier report. The committee endeavored to obtain as many of the original questionnaires as possible, and is indebted to the Home Economics Departments of the following institutions for securing the material used in this report: the University of California, the University of Nebraska, the Utah Agricultural College, the Michigan Agricultural College, Cornell University, and the University of Minnesota. The data presented were compiled from 545 questionnaires in the cases of undershirts and underwear, from 573 questionnaires in the cases of coat linings and dress foundations, and from 467 questionnaires in the case of children's dresses. In as much as all of the questionnaires returned did not contain data on all of the items listed, the following groups, mentioned less than 100 times, have been omitted: fabrics used for infant's garments, wool and union materials for children's dresses, union materials for dress foundations and underwear other than knitted, and cotton and union materials for coat linings.

Over half of the questionnaires returned were from home-makers, about one-half came from teachers, and most of the remainder were turned in by college students.

Following is a summary of the materials purchased, by the yard and ready-to-wear, by these groups of people for each of the five types of garments in question—undershirts, underwear other than knitted, coat linings, dress foundations or linings, and children's dresses.

1. *Undershirts.* Ten different silk fabrics are listed as having been used for this purpose, but only three fabrics are of marked importance. Jersey, taffeta, and satin (including messaline) have been used for more

¹ Presented at the meeting of the Textile Section of the American Home Economics Association, Swampscott, June, 1921.

² Phelps, E. L.: A Study of Clothing Purchasing Habits, *Jour. of H. E.*, Vol. XII, pp. 491-495.

than nine-tenths of the 323 underskirts mentioned, the remaining one-tenth being made from seven other fabrics. Most of the jersey skirts were purchased ready-to-wear, less than one-tenth being purchased by the yard. Similarly taffeta was about four times more popular as a material for ready-made skirts when compared with materials bought by the yard, while satin was more commonly used by the yard.

A little less than half of 375 cotton skirts were made of sateen, although 21 cotton materials are named for that purpose. Muslin and cambric were used for about one-fourth, with muslin predominating. Four other commonly used materials are longcloth, percaline (including heatherbloom), gingham, and nainsook. The noticeable difference in choice of material when purchased by the yard or ready-to-wear is that cambric is much more commonly used by the yard, while percaline is more commonly purchased ready-to-wear.

2. *Underwear (other than knitted)*. 481 undergarments made of 13 different cotton materials are reported. About 85 per cent of these garments were made of nainsook, longcloth, and muslin, six of the 13 materials being used for 95 per cent of the garments. About the same relative importance has been given these six fabrics when purchased both by the yard and ready-to-wear, with one exception in the case of crepe, which has been nearly four times more popular by the yard than ready-made.

Only 132 cases of silk underwear were cited, seven fabrics being used. A little over half of these garments were made of crepe de chine, satin and jersey being somewhat less important, and all of the latter being purchased ready-to-wear.

3. *Coat linings*. Silk coat linings are much more popular than those of cotton or of mixed fibers, as evidenced by 257 cases of the former as compared with 85 of the latter two. Four of the nine silk materials listed—satin, pussy willow, taffeta, and foulard—are the most commonly chosen, satin being used in about two-thirds of the cases. All four retain about the same relative position whether purchased ready-to-wear or by the yard.

4. *Dress foundations or linings*. Three out of eleven silk materials constitute 94 per cent of the 139 silk dress foundations reported, china silk alone being used for nearly three-fourths. The other two fabrics are satin and taffeta, the popularity of satin being most marked when used by the yard.

A larger number of cotton materials are commonly utilized for dress foundations than is noted above for silk, six fabrics being used for about

90 per cent of the 168 cases reported, although 13 materials are named. Of these, net was used for nearly half, and lawn for a little less than one-fourth of the cases. The other four of the six materials mentioned are sateen, cambric, muslin, and voile.

5. *Children's dresses.* Cotton materials were the most abundantly reported fabrics for children's dresses. Twenty-two materials were named, but again four of them, gingham, percale, voile, and Devonshire cloth, were used for almost three-fourths of 205 garments, gingham alone being used for nearly one-half of the total number of cases. Most of the materials for this purpose are apparently bought by the yard, inasmuch as only 40 of the 205 cases were reported as being purchased ready-to-wear.

The following observations, based on these data, are in general comparable with the findings for service dresses.

All types of materials are not of equal importance for the types of garments studied. Silk is almost as popular a type of material for underskirts as is cotton. Cotton is very markedly preferred for undergarments when compared with silk. Silk as a material for coat linings is about three times as popular as cotton. Cotton is used more frequently for dress linings than is silk. For children's dresses, cotton is the only fabric reported a sufficient number of times to be included here. Climate, occupation, and income are doubtless factors which influence these choices. In general a relatively large number of fabrics are named in each class studied, but the major part of the garments are made of only a few different materials. As in the case of service dresses, no information is available concerning either retail or wholesale sales of fabrics for these uses, or the effect of the prevailing style on the selection of materials, while very few trademarked fabrics were named. No observations could be made concerning the actual effect of differences in climate, occupation, or income, or concerning the cause underlying the selections herein recorded.

Summarizing the whole survey of purchasing habits, it will be seen that a few fabrics in each group or class of materials, i.e., wool, silk, and cotton, are of outstanding importance. For this final summary, all results were combined, omitting only those items previously noted where less than 100 returns were made. The following information is obtained as a result.

Wool fabrics (service dresses), 34 materials, 1144 cases.

Silk fabrics (service dresses, underskirts, underwear, coat linings, dress foundations), 34 materials, 1612 cases.

Cotton fabrics (underskirts, underwear, dress foundations, children's dresses), 36 materials, 1229 cases.

Seven, eleven, and fourteen of these three groups of materials, respectively, are used for approximately 94 per cent of the garments reported for each group. These materials are listed below in the order of their popularity, as indicated by their percentage use.

Summary of survey of purchasing habits. Materials constituting approximately 94 per cent of garments reported for uses named above, combining all groups of at least 100 cases.

Materials listed in order of popularity as indicated by percentage use

WOOL FABRICS	SILK FABRICS	COTTON FABRICS
<i>per cent</i>	<i>per cent</i>	<i>per cent</i>
Serge.....55.0	Satin*.....28.0	Nainsook.....15.0
Tricotine.....11.0	Taffeta.....22.0	Sateen.....14.0
Jersey.....10.0	Jersey.....9.0	Longcloth.....12.0
Poplin.....5.0	Crêpe de chine.....9.0	Muslin.....11.0
Broadcloth.....5.0	China silk.....6.5	Cambric.....10.0
Gabardine.....4.0	Georgette.....5.5	Gingham.....9.0
Velour.....4.0	Pussy willow.....5.0	Net.....7.0
	Tricolette.....2.5	Lawn.....4.0
	Poplin.....2.5	Percaline†.....2.0
	Velvet.....2.0	Voile.....2.0
	Foulard.....2.0	Crêpe.....2.0
		Batiste.....2.0
		Percalé.....2.0
		Devonshire cloth....1.5
Totals.....94.0	94.0	93.5

* Satin including messaline.

† Percaline including heatherbloom.

As evidenced by this survey, these thirty-two materials, in the order named, are worthy of consideration for standardization.

SPRUCE BEER AS AN ANTISCORBUTIC

VIVIA B. APPLETON

In an article on "Diet in Labrador," in the May number of the *JOURNAL*, the author calls attention to the use of spruce beer as a beverage and a spruce decoction as a "spring tonic" in Labrador. This custom suggests the value of spruce as an antiscorbutic, since, in this region, the diet is so restricted that deficiency diseases, beri beri and scurvy, occur every spring. It is an old remedy which has fallen into disuse, rather than a new one.

Jacques Cartier was the first to describe the use of spruce as an antiscorbutic. (Hakluyt's *Collections of Voyages*, Vol. III, page 262). On his second voyage of discovery in Canada, Cartier wintered near an Indian village, Stavacona, in Quebec. Both the Indians and his crew were afflicted with scurvy. Between December and the middle of March, 25 men from his crew died, and the rest were so sick that recovery was despaired of except for three or four. The middle of March, Cartier noticed an Indian whole and sound, who had been very ill with scurvy ten or twelve days earlier. He asked the Indian how he had healed himself, and was told that he had taken the juice and sap of the leaves of a certain tree called "Ameda." At Cartier's request, the Indian had branches brought, and showed how the bark and leaves should be boiled together, and the resulting decoction taken every other day. So successful was the remedy that all Cartier's crew were speedily completely cured, and the narrator goes on to say, "It wrought so well, that if all the physicians of Montpelier and Louaine had been there, with all the drugs of Alexandria, they would not have done as much in one yere as that tree did in sixe days, for it did so preuaile, that as many as used it, by the grace of God recouered their health." He goes on to explain that the "Ameda" is thought to be the *Sassfras* tree, but this incident occurred the middle of March at a season when "our captaine" was walking from his boat to the shore upon the ice, at the time he saw the Indian who had been healed, so the "Ameda" could not have been a deciduous tree. Lind believed it to be the American spruce.

Although this spruce decoction was an Indian remedy, scurvy appears to have been a rare disease among the Indians. Benjamin Rush (*Medical Inquiries and Observations*, Phila. 1805, Vol. I) says that he could not find that Indians were ever subject to scurvy, and describes their diet as "of a mixed nature, being partly animal and partly vegetable."

Matthews (*Ethnography and Philology of Hydasta Indians*, Wash. D. C., 1877, page 25) also refers to the fact that Indians were not subject to scurvy. The tribes in the North, however, must have found greater difficulty in securing a mixed diet, and sometimes suffered from scurvy, and so had found a remedy.

Budd (*Tweedie's System of Pract. Med.*, Phila., 1841, Vol. V. 99-151), relates that the early northern colonists in America were greatly afflicted with scurvy, and often considered abandoning their settlements, because of the mortality caused by this disease, in winter. He states, however, that as early as the middle of the 18th century "the persons employed in our factories at Hudson Bay enjoyed extraordinary health and were entirely exempt from Scurvy, a circumstance which has been ascribed to the use of Spruce Beer which they had adopted as a common beverage."

Whether the use of spruce beer in Europe was adopted from this American custom or was an original discovery, is not certain. Lind, quoted by Hess in his book on scurvy, and by Budd, describes the preparation of an antiscorbutic decoction of fir tops, and attributes its use to the advice of Erbenius, the king's physician during the Swedish-Russian war in 1708-9, when it was found by the Swedes to be efficacious in the treatment and prevention of scurvy. Lind was also familiar with Cartier's decoction of bark and leaves of the "Ameda" tree. Lind is quoted by Budd in describing two squadrons, fitted out by the court of Russia and obliged to winter in Siberia in 1736, when each independently discovered by chance that the mountain pine had a most surprising antiscorbutic virtue.

There is abundant proof that spruce beer was in common use and a generally accepted antiscorbutic during the 18th century. Sir Gilbert Blane (*Select Disertations*, London, 1822) refers to its use. Notes taken by Professor C. M. Andrews of Yale,¹ from the *Calendar of State Papers Colonial*, 1902, page 742-743, say that Captain Leak, before the Board of Trade in Whitehall, observed that "beer made with molasses and spruce buds (with which that country [Newfoundland] abounds), is both cheaper and wholesomer than beer made with malt." A note also taken by Professor Andrews from Document among the *Treasury Papers P. R. O.*, London, 1772 states "in a letter from the Admiralty to the Treasury in England, the former speaks of 'essence of spruce,' from Quebec, 'which when brewed into beer may be of greater service to the navy in preserving seamen from scurvy.'"

¹ These and other data were supplied by Professor Lafayette B. Mendel of Yale University.

When more rapid navigation was made possible by replacing sailing vessels by steam power, and a more varied diet was made possible by more quick and easy land transportation, scurvy ceased to be a permanent menace, and this knowledge of spruce as an antiscorbutic seems to have been forgotten. Although there were many outbreaks of scurvy during the Civil War, and forests of spruce trees were near at hand, we find no mention either in *Medical History of the War of the Rebellion*, Washington, 1888, Vol. III, p. 63, or in *Munson's Military Hygiene*, N. Y., 1901, p. 760, of spruce beer being given as an antiscorbutic, although the absence of fresh vegetables was lamented.

In writing on "Scurvy in the World War" (*International Journal of Public Health*, 1920, Vol. 1, p. 203), Hess states that the largest number of cases was reported on the eastern front, in Russia and among the nations neighboring Russia and in Mesopotamia. Along the western front very few cases were described. The civilian population of the various warring countries was by no means spared. The greatest amount of scurvy in civilians, of which we have information, was in Austria, more particularly in Vienna. Tobler (*Der Skorbut im Kindesalter*, *Zeitschr. f. Kinderheilk.*, 1918, XVIII, 63) describes scurvy in children. He was familiar with the writings of Lind and the advice of Erbenius to the troops of Chas. the XIIth in the winter of 1708-9. Tobler found that the infusion of pine needles as a tea gave the best results. As soon as he was assured of the usefulness of this remedy, the children from the children's home, of which he had direction, were sent into the woods with bags to gather fresh pine needles, and every child was given daily a cup of pine needle tea, to which Tobler gives high praise both as a remedy and a preventive means for scurvy. In most cases it is probable that the so-called spruce beer was really little more than an infusion, as it was taken when freshly made.

The wide distribution of forests of black spruce makes it a remedy easily obtained at any season, and almost without cost. These forests are present from New York to British Columbia, Newfoundland, Hudson Bay Region, Alaska, and along the mountains of North Carolina and Tennessee. The Norway spruce is equally common in northern Europe. It is to be hoped that this efficacious, easily-obtained remedy and preventative may not be forgotten if a future need arises.

FOR THE HOMEMAKER

BOBBINS AND PINS

AGNES DEVOE MILNE

The English lane winds uphill past some old cottages; plum vines climb over their grey stones, and wallflowers bloom bright on the mossy roofs. At an open doorway framed in rosebuds sits an old woman; a three-legged lace pillow is before her, and her rheumatic fingers are evolving a Cluny lace edging with witching speed, while the pleasant click of the bobbins mingles with the hum of the bees.

"Good afternoon, Mrs. Wattle," says a brisk voice; as the visiting ace buyer jumps from her little cart. "How's the work coming on?"

The old body lifts her bobbing curls. "Eh, Miss, not so bad; it's pretty loice." The buyer gives an intelligent look at the lace on the pillow, says a word of praise, and passes on to the next doorway. Greatly interested, we trot along too.

But here Granny is rocking Baby's cradle; no clicking bobbins today—only laments from the contents of the cradle. "Not working, Miss; minding Baby; he's a bit fretful." She looks wistfully at her idle pillow covered with a towel. The buyer lifts a corner; a fine big centerpiece border is in progress.

"Spider pattern," volunteers Granny with pride. The buyer takes out her purse. "It will take Granny many weeks to finish this, so we pay her a little each week."

We accept the buyer's delightful invitation to ride about with her in the pony-trap to see some of the isolated workers. As we jog along between blooming hedgerows, she relates the growth of this lace industry. Many generations ago Flemish and French refugees brought their lace pillows with them in their weary flight to these counties and shires of Bedford, Buckingham, and Northampton. They joined in friendly competition with the English women who were already making a lovely cobwebby lace; so with intermarriage the art passed down to son and daughter from mother and father—for men worked at it too. Royalty and nobility were extravagant wearers of lace—ruffs, cuffs, and kirtles. Gentry and ecclesiastic alike were adorned with it. But with the march

of progress, the invention of machinery, and so on, handmade lace found fewer markets. Private patrons were hard to keep, and gradually lace makers put away their pillows, and fingers forgot their cunning. Now within a decade a business-like agency has organized the industry. It distributes patterns, buys only the best work, and by excellent advertising has created a world-wide market for the lace. The workers have hunted up their pillows after years of idleness; they have collected their ancient bobbins, and many a cottage is now enriched by a small steady sum coming in weekly—a blessing to elderly women who cannot get outside employment, and to wives of farm laborers whose winter wages are uncertain.

The kitchen in one tiny house is a busy place. A “bespoken” piece, a beautiful filmy wedding veil is on the pillow, and mother is late with it. Two little daughters are helping with thread, another is minding baby, and the fourth, the steaming teakettle on the hob. Mother, her mouth full of pins, is shuffling bobbins with miraculous speed, rebuffing with no uncertain foot a frivolous kitten, and directing the small girl to pour a “bit of tea for the lydies.”

“Six or seven hours a day is all the average worker can give to the lace,” explains the buyer as we pause at the next house where a white-capped old body displays her pillow with toothless pride. “Past eighty years, Miss,” she informs us. She can do only simple edgings; many pins would tax her eyes, though this bobbin lace does not try the eyesight as does the needle-point of the French and Belgians. She shows her old-fashioned light for use in the long winter evenings—a wooden block with candles fastened back of three crystal globes filled with water. These reflect, it is true, only an Early Victorian light, but the old folks prefer it to newfangled lamps. Below hang the hutches—rude reed baskets in which the crystals are kept spotless during the day. In the corner stands her pipkin for hot wood ashes; she cuddles this under her skirts in the winter, for stone floors can be bitterly cold for the toes. By the fire an old man is shelling peas with patient gnarled fingers. “I used to do a bit of loice, myself, Miss,” he nods at the pillow, “and I mind old Daddy Dawson, when I were a boy, getting a prize for his loice.”

One more open door—a cheery little place with its stones scrubbed white, braided rugs, geraniums brilliant in the tiny casement windows, a fat white cat in the sun, and Miss Newton herself, who shares the cottage with Pussy, all tidy in print gown and pinafore! She is doing a set of collar and cuffs. Over her head hangs a portrait of her mother

at her pillow in the last days of her lace career. Miss Newton is especially proud of the waved Flemish design which her mother used in much of her lace, and which had come down to her from an exiled ancestor. Miss Newton owns some bone bobbins skilfully carved with the initials and dates of the several generations who plied them; others are carved like little cathedral pillars. She remembers her mother's tales of the old dames who kept lace schools, and of the quaint songs called lace-tellings, which the children sang at their pillows as they put in the pins.

Nowadays the workers can copy the best designs in any pillow lace. They teach the younger ones, lend their parchment patterns, and vie with each other only in the quality of their work. Loose ends and careless knotting condemn a piece, and the worker soon learns what Ruskin preached—that honest handwork is never lost time.

The poet Cowper lived for many years in this district. He often wound bobbins for Mrs. Unwin, and, in their old home, now an attractive museum, are her pillow, bobbin-winder, and candle-block. Cowper, writing to a friend in 1784 a half-humorous protest against unjust taxes on candles, says, "I wish the tax-workers would visit the huts of our lace-workers, and see them working in the winter months by light of a farthing candle from four in the afternoon till midnight." In another letter Cowper speaks of a man in Olney, a common sailor, who amassed money in the lace business, and then put almost "his whole substance to hazard in sending a cargo of lace to America." This venture, alas, was a failure; the busy colonists had more practical uses for their money.

At the lace agency, careful sewers are employed to make up the bought lace into garments, napery, and other articles according to Fashion's latest whim. The completed goods, easily packed into envelopes, are sent through the mails to possible customers, who may keep them for several days' inspection. Women are usually glad to pay the duty (in most cases trifling), for the sake of owning strong lace of all varieties—delicate Bucks, or the heavier Cluny and Torchon. They may well feel a satisfaction, too, in the thought that they are upholding a market for a beautiful and womanly handwork wrought in a quiet little home.

FEEDING OUR CITIES¹

CAROLINE B. SHERMAN

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Feeding our large cities is a task of no mean magnitude. Even to keep them supplied with sufficient fruits and vegetables to meet their demands is a huge business in itself. Although Chicago requires 24,000 cars of such produce yearly in addition to the quantities trucked in by neighboring farmers, New York City requires more than twice that number, or approximately 50,000 cars annually. New York's annual consumption of the leading vegetables represents about 14 per cent of all that are shipped by rail throughout the country, and of the leading fruits it requires 15 per cent. Compared with this demand, Chicago's requirement of 7 per cent of fruit and vegetable shipments seems modest.

Apples, peaches, cantaloupes, and strawberries, white potatoes, cabbages, tomatoes, and onions, are included in these cars. Apples appear to be the all-round favorite fruit in both cities. On an average Chicago uses more than 5000 cars during a year while New York doubles the number and uses approximately 10,000 cars. The two cities thus consume about 22 per cent of the shipped crop of the country. The steadily increasing takings of the large cities undoubtedly represent a response to the intensive marketing campaigns waged by progressive apple producers' associations. Chicago draws its supplies of barreled apples largely from Illinois, Michigan, and New York, but goes as far as Washington for its boxed supplies; New York goes far afield to fill its demands, literally from Maine to Oregon, and south to Virginia. However, New York State continues to ship steadily to Chicago, having sent as many as 1500 carloads in a single year.

As a rule, Georgia peaches reach both Chicago and New York City in larger quantities than those from any other state. These peaches are early in the market and continue for several months. California reaches both markets. In fact the peaches shipped out of these two states are equal to all the peaches shipped out of all the other states combined. The original commercial peach country, including Maryland, Delaware, and New Jersey, is now relatively less important in the markets. Peaches are found on the markets from June to October and prove to be the most popular of short-season fruit.

¹ Figures based on those supplied daily by the railroads in connection with the Federal Market News Service.

The growth of the cantaloupe industry in the Far West and its competition with eastern production in eastern markets has been an interesting development in recent years. Most of the large cities receive the bulk of their shipments from California, Arizona, and Colorado. New York receives about 59 per cent of its carlot supplies from these states, while Chicago draws on them to the extent of 81 per cent, and of the remaining portion practically none come to Chicago from the East.

Most of Chicago's supply of strawberries are received during May and June. Michigan usually sends the largest number of cars, averaging about 340 a year. Louisiana, Tennessee, and Illinois are the next heaviest contributors. Chicago's total consumption averages 1200 cars a year, and New York's 1750, but the amount varies greatly from year to year, largely according to quantity production and price. During the war, labor and transportation conditions greatly lessened the supply everywhere.

The faithful potato is of course the vegetable most in demand. Carloads received in Chicago average 11,000 a year. Michigan, Minnesota, and Wisconsin supply more than half of Chicago's demand and the remainder come from widely separated states according to season. They come first from Florida, then from Louisiana, Mississippi, and Texas, then from Alabama, the Carolinas, and Virginia as the season advances. Potatoes comprise about two-thirds of New York City's total supply of leading vegetables, and in number of carloads they equal its entire supply of fruit. Twelve million bushels is only an average yearly supply for the city.

Practically all of Chicago's Bermuda onions are raised in Texas but New York receives imports from Valencia and even from Bermuda. California ships onions across the continent to compete with those imported and those grown on the Atlantic seaboard. Some years the imports for New York are more than 1,000,000 bushels, for with its large foreign population onions are much in demand. It has been found, however, that the demand for onions here as elsewhere is rather a stable one and is not appreciably stimulated by large receipts or low prices.

Most of the early cabbage in the Chicago market comes from California, Florida, Mississippi, and Texas. A noteworthy point here is that, when Texas had an exceedingly short crop in 1918 and did not ship to Chicago, Florida with an exceedingly large crop more than doubled her shipments there of the previous year. The reverse was true in 1919. Late cabbage comes largely from Wisconsin and New York. Early and late cabbage together total about 1400 cars annually for Chicago and 2400 for New York.

Tomatoes are now shipped great distances during all kinds of weather. Both cities have a year-round supply. During the winter, California and Florida ship in small lots, and, very early in the spring, Mississippi and Texas come on the markets in rapidly increasing quantities, followed later by Tennessee and states farther north. The west coast of Mexico has contributed as many as 50 cars to Chicago during some years.

The production of these perishable crops is far more hazardous than the production of staples, and their shipment to market over great distances in varying degrees of weather, heat, and cold is a modern achievement of almost romantic interest. Those who undertake to raise and ship highly perishable fruits and vegetables on any large scale find themselves in a business, which, by the very nature of the product, is fluctuating and speculative. Crop pests, late frosts, wet seasons and dry, great heat and sudden cold, all take their toll of the supply available to feed our large cities with their many millions of people.

BACON'S EXPERIMENT ON PRESERVING MEAT WITH COLD

The following, taken from the Biography of Francis Bacon, refers to an experiment performed in 1626:

"But in ill health and infirmity he continued his studies and experiments; as it occurred to him that snow might preserve animal substances from putrefaction as well as salt, he tried the experiment, and stuffed a fowl with snow with his own hands. The great apostle of experimental philosophy was destined to become its martyr; he took cold. From his bed he dictated a letter to the Earl of Arundel, to whose house he had been conveyed. 'I was likely to have had the fortune of Caius Plinius the Elder, who lost his life trying an experiment about the burning of the Mount Vesuvius. For I was also desirous to try an experiment or two touching the conservation and induration of bodies. As for the experiment itself, it succeeded excellently well.' He had, indeed, the fortune of Pliny the Elder; for he never recovered from the effects of his cold, which brought on fever and a complaint of the chest; and he expired on the 9th day of April, 1626, in the sixty-sixth year of his age."

EDITORIAL

Our International Interests. As this number of the JOURNAL goes to press, the Conference on the Limitation of Armament is fixing our thoughts on international affairs. If that gathering accomplishes nothing else it may drive home the fact that in these democratic days a whole nation must be "internationally minded" if its politicians are to secure wise and lasting agreements with other nations. Can home economics workers as a group do anything to further international understanding and good will?

Mrs. Norton's work in Constantinople is evidence that they can, and so are the exchange lectureships which the Association has fostered. The International Committee suggests still other ways by which we and our foreign colleagues can come to know each other better. It hopes that a sort of news exchange with workers in other parts of the world can be arranged through the JOURNAL and it urges all members of the Association to send in any interesting foreign items they may glean from travel, reading, or correspondence. To Americans going abroad it will be glad to furnish whatever information it possesses regarding home economics institutions, and asks them to report their experiences to the Committee for the benefit of future travellers. It also desires to be informed of the presence here of foreign visitors interested in home economics and will do what it can to make their stay in the United States more profitable and agreeable. Above all, it now asks help in securing a suitable representation of American work and workers at the Third International Congress of Home Economics Instruction at Paris in April, 1922. Such representation may be of three kinds: by delegates to the Congress, by contributions to the program, and by exhibits showing the progress of home economics work in this country.

The topics to be considered at Paris will be found on page 139 of the JOURNAL for March, 1921. As was explained in the March JOURNAL, prospective members of the Congress or organizations affiliated with it send in, several months in advance, brief notes of contributions which they wish to make to the discussion of any topic; a special editor makes a summary of all the notes received on a given topic and presents this at the Congress. Opportunity is also given at the Congress

for brief individual contributions or discussions, but to be included in the preliminary program sent to all members, the data should reach the Fribourg Office of the International Federation of Home Economics Instruction as soon as possible. Members of the American Home Economics Association who wish to make such advance contributions may do so through the International Committee of the Association and should send them at once to Miss Helen Atwater, Department of Agriculture, Washington, D. C.

Miss Atwater will be glad to know of any home economics workers who expect to be in or near Paris next Easter, and will pass on to them whatever information she has regarding the Congress.

Standardized Weights and Measures. Glass cups, tin cups, enamel cups, aluminum cups! What a variety of measuring cups is to be found in the food laboratories of our schools and how far are most of them from approaching the standard volume of one fourth of a quart! The failure of home economics teachers as an organized group to have demanded a standard volume measuring cup is responsible for the heterogeneous collection we now find with us. That we have been content with such make-shifts for all these years is not a matter calling for self-congratulation.

Cups of standard capacity are essential if we are to have uniformity in the interpretation of proportions used in cooking and, also important, they are essential to the formulation of a system of standard weights for the cupful of staple food materials. Almost everyone admits the necessity of knowing at times how much a cupful of flour, milk, et cetera, weighs, but not enough of us see the importance of having carefully determined weights to be used without change in all courses in foods. The usual procedure in most schools is for each successive class to adopt for the term's use its own casually determined set of weight equivalents. A perusal of the data reported in experimental and research fields emphasizes the lack of agreement in such seemingly fundamental points.

Is there a difference, as some teachers and text-books continue to state, between the number of tablespoons of liquid and the number of tablespoons of dry ingredients contained in a cup? The volume of the cup is 237 cubic centimeters whether the material filling it be sugar or water; with care, liquids can be measured just as level as dry materials, allowing the usual 16 tablespoons to the cup.

Controlled processes of cooking and dietary calculations both demand such uniformity of data as we do not now have. Previous attempts have been made by interested ones to assemble and work up into usable form the information already available. The tabulation of average weights, used in many of the schools of the country, by the office of the Food Administration in 1918 was the most comprehensive of these attempts, but there was no response from home economics teachers indicating that the adopting of the averages or any others was desired.

Definite action on a question like this will help clear away the haze of inaccuracy and indefiniteness which envelopes some of our teaching of foods.

Bread. Do You Want a "Standard" Loaf? Weights and measures officials of the United States are proposing a law which will require the sale of bread in standard loaves of one-half pound, one pound, one and one-half pounds, or in other multiples of the standard weight. The object is to remedy the present condition where loaves are made up in any size which suits the baker, and sold with the weight unmarked, leaving the buyer ignorant of the cost she is paying per pound. Loaves may seem similar in size but reveal two or three ounces difference in weight when closely examined. You can compare the prices which Grocer A and Grocer B are charging for sugar because each states clearly his price per pound, but there is no such way of deciding whether to give your trade to Baker C or Baker D. Each offers you a *loaf*, and to buy intelligently you must make a purchase from each, take the two loaves home, weigh them, and see which is cheaper. This condition prevails in the majority of states, there being a few which have retained the war time regulation of the loaf upon which weight must be given.

There should be a remedy. Perhaps it is not the "standard" loaf but the selling of bread by weight—a loaf of any size the baker chooses to make, but with the weight plainly marked on the loaf itself, the wrapper, or a huge placard above the bread counter. This latter plan is favored by the association of bakers who foresee many difficulties in price adjustments with the pound and half-pound loaves. That we should permit as unbusiness-like a system as we now have for the sale of our most used food seems incredible. Either the "standard" loaf or the sale of bread by weight should be advocated.

OPEN FORUM

On Scientific Writing. A treatise on plant pathology¹ may seem an odd book to recommend to research workers in home economics and even to the general reader. Only those interested in plant pathology, it is true, will appreciate most of it, but the last section (pages 633-661) entitled "General Suggestions" might well be required reading for college students in all scientific courses and part of the laboratory handbook of every mature research worker. Dr. Smith is himself a scientist of more than national reputation and hence is in a position to give invaluable advice on the attitude of the scientist toward experimentation, the presentation of data, and the ethics of research. While Dr. Smith's standards may be higher than those of many others he has set them forth in a lucid, forceful style that shows beyond question the value of technique in writing whatever may be the subject, as the following extracts bear witness:

The object of publication is to let other persons know what we have discovered. We cannot reach every one, nor is that the aim, but we should be able to reach those cultivating the same field. The choice of a place for publication is, therefore, not unimportant. Generally we should choose some journal devoted to our specialty or, at least, concerned with kindred topics.

Having selected a place for publication, the serious question arises how best to present the subject matter. This is comparatively easy only when the subject is a simple one and the contribution is but a note. It is grave if the subject is complex, and the writing extensive. Moreover, I have observed that the difficulty increases in proportion to the ignorance of the writer. Many a big book could have been boiled down to a few chapters, and in some cases to a few sentences, or to nothing at all, had its author been possessed of clear ideas. As a means of compression, learn to think. This is too much to expect of every one, but not too much to insist upon for the man of science. Whatever is worth doing at all is worth doing well. Clarity is the soul of truth, and especially in science there should be an idea behind every expression, and this idea should be stated as clearly as language permits. To read the dictionary is usually considered in the light of a joke, but I doubt if any student could do better, and that, too, through a long series of years. If he does not continually thumb grammar and dictionary, and persistently read the best authors, he will seldom acquire a luminous and persuasive style. There are various ways of saying things, but only one best way. In spite of the motley array of bad writers, it is best that subject and predicate

¹ An Introduction to Bacterial Diseases of Plants. Erwin F. Smith. W. B. Saunders Company, 1920.

should agree, that one should avoid split infinitives, and especially that each statement should be susceptible of but one interpretation!

Every paragraph and every sentence in your paper should receive careful and repeated consideration: first, as to whether it tells the exact truth; second, as to whether it is absolutely clear, i.e., will convey the same meaning to all as to yourself (try it on your friends, if they will submit to it); third, as to whether it is complete, or requires various additions or qualifications—science is an eternal qualification; fourth, as to whether the sentences in it are entirely logical and move convincingly toward your final conclusions. These things can be determined only by repeated readings and much pondering. It helps greatly, when one has finished a paper, judging from my own experience, to turn back and re-write the whole of it. During this laborious and more or less irksome process, many new ideas occur to me, and better ways of stating ideas already expressed. * * * * *

You publish to convince your readers and advance your own branch of science, and incidentally to enhance your own reputation. Look to it, then, that your writings are not only permeated with a love of the truth, but are forceful and limpid as a mountain stream. To this end, avoid technical terms when common words will serve, even if you must do so at the expense of some conciseness. Nothing is more discouraging to the general reader than a book or paper bristling with a newly invented terminology, or full of mathematical formulae. * * * * *

A good rule is never to use two pages for a subject that can be compressed by a little thinking into one. The generality of men use more words to express an idea than are actually necessary, if the best words had been chosen. Study the meaning of words, their shades of meaning, and re-write a subject twenty times, if necessary, to state it cogently and with brevity. Remember: nearly everybody will read a brief statement on an interesting subject, while only the most phlegmatic and determined will hold themselves to a long winded one. You will more than treble the number of your readers by halving your paper! Moreover, for the necessity of those who cannot spend even the minimum of time necessary to read a short paper, and for the convenience of everybody, especially of the foreigner, it is your solemn duty to sum up the substance of your contribution in a series of brief conclusions which everyone will read, and which, if well put, may induce many to turn back and read your whole paper. No little thing vexes me more than to take up a paper two hundred pages long, let us say, often in a foreign language, and find no summary. I dip into it here and there trying to find what it is all about, without actually reading it word for word, and if I cannot do this the chances are that I throw it aside. Other people beside an author have some rights! Once I might have read it *verbatim*, but I have read too many such without profit, and now I am wary. It may be nearly all ambrosia, but how is one to know if its author has not respected it enough to provide a summary of its contents, as an appetizer?

QUESTION BOX

Question: How much time should be allowed, in the dining room of a state normal school, for serving dinners in a manner which conforms to good table etiquette?

Is such service justifiable in consideration of the fact that it is a part of a student's education, or should plates be stacked at the table?

Should it be necessary to serve cereal in the same saucers used for fruit—after they have been scraped at the table?

Can we make our work in cooking classes, on table service, function when students see service of this kind three times a day for nine months?

How many tables (eight each) can a student take care of and serve satisfactorily in a forty-five minute period?

Is it legitimate for a *state* school to lay aside annually a profit on board charged students? If so, what is a legitimate profit?

Answers to the above questions will be welcomed, especially answers from those who have had practical experience in administering a college dining room where student service is used.—Editor.

One reply is as follows:

1. Three quarters of an hour should be allowed for the service of dinner; one hour would be better.

2. As a school or college is often judged by the table manners of its graduates, the most dignified service and appointments possible should be provided. Plates should not be stacked at the table.

3. It seems most unfortunate that students should find table service in school inferior to that to which the majority must be accustomed in their homes.

4. No, I think it would be difficult.

5. I know of one university dormitory where sixteen—two tables of eight—are served by one student most satisfactorily. Plate service is used. The time allowed in the dining room is not limited. A three or four course meal is served.

6. It would seem only right that only enough profit to cover depreciation and renewal of equipment should be taken from the amount paid to the state for board by students.

BOOKS AND LITERATURE

PAMPHLETS RECEIVED

Issued by the U. S. Department of Labor, Childrens Bureau:

- Infant Mortality in Pittsburgh.* An analysis of records for 1920, with six charts. Bureau Publication No. 86.
The Administration of the Aid-to-Mothers Law in Illinois. By Edith Abbott and Sophonisba P. Breckinridge. Bureau Publication No. 82.
Administration of Child-Labor Laws (Wisconsin). Bureau Publication No. 85.
Average Heights and Weights of Children under Six Years of Age. Bureau Publication No. 84.
Breast Feeding. Bureau Publication No. 83.
Children Deprived of Parental Care. A study of Children taken under care by Delaware Agencies and Institutions. Bureau Publication No. 81.
Illegitimacy as a Child-Welfare Problem. A study of original records in the city of Boston and in the State of Massachusetts. Bureau Publication No. 75.
Infant-Welfare Work in Europe. An account of recent experiences in Great Britain, Austria, Belgium, France, Germany, and Italy. Bureau Publication No. 76.
Physical Standards for Working Children. Bureau Publication No. 79.
Probation in Children's Courts. Bureau Publication No. 80.
Standards of Legal Protection for Children Born out of Wedlock. Bureau Publication No. 77.
State Commissions for the Study and Revision of Child-Welfare Laws. Bureau Publication No. 71.

Issued by the U. S. Department of Labor, Women's Bureau:

- A Physiological Basis for the Shorter Working Day for Women.* Bulletin No. 14.
Women's Wages in Kansas. Bulletin No. 17.

Issued by the U. S. Department of Agriculture:

- Beautifying the Farmstead.* Farmers' Bulletin No. 1087.
Rice as Food. Farmers' Bulletin 1195.
Status and Results of Home Demonstration Work: Northern and Western States. By Florence E. Ward. Department Circular No. 141.
The Farm Woman's Problems. By Florence E. Ward. Department Circular No. 148.

Issued by the New York State College of Agriculture:

- The Country Theater.* Country Life Series, Lesson 153.
Household Insects and Their Control. Country Life Series, Lesson 134.
Use More Cheese. Country Life Series, Lesson 133.
The Vegetable Garden. A manual for Junior Extension Workers in Vegetable Gardening. Bulletin 4.

Issued by the University of Illinois:

- The School Lunch.* By Mary Pack. Extension Circular No. 41.
Suggestions for Making Jelly, Jam, Butter, Marmalade. By Nina B. Crigler and Harriet M. Phillips. Extension Circular No. 37.

Issued by the College of Industrial Arts, Denton, Texas:

Food Preservation, Canning, Preserving, Jelly Making. By Margaret Gleason. Monthly Bulletin, April 1, 1921.

Table Service. By Sarah Best. Monthly Bulletin, July 1, 1921.

Issued by the publishers listed:

Clothing—Food—Shelter. Bulletin No. 8. Missouri State Bd. of Educ., Jefferson City.

First Reader. Nutrition Series. No. 1. Merrill-Palmer School, Detroit, Mich.

How Natural Gas Burners can be Improved. Investigation made by the Bureau of Standards.

King Good Health Wins. A Modern Health Crusade Play. Mrs. Ernest R. Grant, 923 H Street, N. W., Washington, D. C.

Laundering At Home. Bulletins 1-6 under one cover: 1—Removal of Stains; 2—Supplies for the Home Laundry; 3—Washing Woolens and Silks, Washing Cottons and Linens; 4—Washing Machines; 5—Ironing; 6—The Equipped Home Laundry. American Washing Machine Manufacturers' Association, 10 South La Salle Street, Chicago.

The Place in Education of Vocational Homemaking. Baroda College, Baroda, India.

Social-Hygiene Education. Bulletin, Ser. 12, No. 13, Teachers College, N. Y. City.

Statistical Report of Infant Mortality for 1920. In 519 cities of the United States. American Child Hygiene Association, 1211 Cathedral Street, Baltimore, Md.

BIBLIOGRAPHY ON THE NUTRITIVE VALUE OF MILK AND MILK PRODUCTS

COMPILED BY MARY CAMPBELL NYE¹

Division of Home Economics, University of Minnesota

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¹ Sharples Scholar, College of Agriculture, Forestry and Home Economics, 1920-1921.

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NEWS FROM THE FIELD

The Second International Congress of Eugenics met in New York, September 22-28. It was attended by leading eugenis, biologists, statisticians, and physicians, from England, France, Italy, Scotland, Bohemia, Cuba, Norway, Mexico, and from all parts of the United States. Addresses at the formal opening of the Congress, were made by Henry Fairfield Osborn, President of the Congress, Leonard Darwin, President of the Eugenics Education Society, London, and Charles B. Davenport, Director of the Department of Genetics, Carnegie Institution of Washington. After this general session the program was divided into sections on human and comparative heredity, eugenics and the human family, human racial differences, and eugenics and the state.

To select the best in heredity is essential for the future evolution of human society; to preserve the best is also essential. The home economics women, by endowing the profession of homemaking with interest and dignity so as to appeal to our best equipped individuals, by dissemination of knowledge which will help to make desirable environments of all homes, may be important factors in the improvement of race hygiene.

Mrs. Bryan was the delegate of the American Home Economics Association to this Congress.

The Third Annual Convention of the Business And Professional Women's Club met at Cleveland July 19-23. This organization is made up of women actively engaged in business. There were bankers, lawyers, teachers, professional buyers, real estate dealers, architects, doctors, and even undertakers among the eight hundred women in attendance. Mrs. Lena Lake Forest presided and was re-elected president for the coming year.

To the home economics people who were at Swampscott, it will be of interest to know that the Business and Professional Women's Club reorganized and raised their dues. This seems to be a year for reorganization.

The program was varied, containing excellent lectures on education, legislation, and what the organization as a whole could do for women in all walks of life. A whole day was spent in discussing legislation that the club as a whole should endorse, and it was gratifying that the Fess Bill was one to receive recognition.

This infant organization has a bright future before it and, because of its membership of business women, should contribute much to all women in all professions.

Amy Kelly, State Home Demonstration Leader, Idaho, was the delegate of the American Home Economics Association to this convention.

The New England Home Economics Association has plans for a busy year under the continuing leadership of Antoinette Roof of Simmons College. The general meetings of the Association will take up various phases of the subject: "Home Economics and the Home," reserving for group conferences, arranged by the chairmen of sections, the detailed consideration of professional problems. Dietitians are organized under Bertha M. Wood of the Boston Dispensary; homemakers under Mrs. Charles E. Mongan; social workers under Margery M. Smith of the Dietetic Bureau; and teachers under Jeannie B. Kenrick of the Newton Vocational School.

The program for the first general meeting, held on October 15, was: The Opportunities of the Home Economics Teacher in Cities—Mrs. William Lowell Putnam, Chief of the Foreign Division of the Military Intelligence Service, Massachusetts; The Rural School

and the Rural Home—Florence M. Hale, agent, Maine State Department of Public Schools.

The Home Economics Section of The Missouri State Teachers Association met in St. Louis, on November 2 to 5. Ida M. Shilling is president of this association, and Clare White, State Supervisor of Home Economics, is acting secretary.

The Teachers of Vocational Home Economics of Missouri met for their annual conference in Columbia, Nov. 9 to 11. The time was spent in the discussion of the following four topics: Making the Applied Art Work Function—discussion led by Helen Gleason, University of Missouri; Determination of Objectives for Home Economics—Adelaide S. Baylor; The Project as a Basis for Teaching—Louise Stanley; The Home Project—Clare White, Supervisor of Home Economics. There was an exhibit and general discussion of illustrative material.

The Home Economics Department of The University of Missouri has moved this fall into its new Home Economics Building. This building has been planned on a unit basis and only the first section has been built. This portion provides adequate laboratory facilities for the department and is being equipped in the most up to date manner. The following laboratories are provided: 3 clothing laboratories, 3 laboratories for food preparation, 1 textile laboratory, 1 laboratory for food chemistry, 2 nutrition laboratories, and 1 experimental kitchen.

Jesse Cline of the University of Kansas has been added to the University faculty of Missouri, as Instructor in Home Economics Education. Mary Klingner, who taught in the University of Oxford last year, has been added to the staff as Instructor in Home Economics Education.

The Home Economics Practice House of the University of Arizona, has been redecorated and refurnished and has added a fully equipped nursery to provide for the

two year old child who has become a part of the household. Training in child care will be included in the homemaking course.

Plans For Vitamine Research. Professor Eddy of the Department of Physiological Chemistry of Teachers College has completed plans for the pursuit of an interesting vitamine study on somewhat unusual lines during the coming year. An abundant source of the B vitamine has been provided in large quantities through the cooperation of the Corn Products Refining Company, together with the facilities of one of their large factories. Dr. R. R. Williams, formerly of the Bureau of Chemistry and now research chemist of the Western Electric Company, will be associated with Professor Eddy in the direction of the experiments. The Fleischman Yeast Company has given a fellowship to provide student assistance in the work. The plans contemplate the utilization and fractioning of large quantities of material to endeavor to secure the product in amounts which will permit of its identification.

The work will be carried out under the direction of Drs. Eddy and Williams, partly in the Corn Products factory, and partly in the college laboratories. The Department of Chemical Engineering will assist to provide large scale utensils for this purpose.

A New Food Forum. The Department of Foods and Cookery at Teachers College has been carrying on, for more than a year, a Food Forum for the New York City public school teachers, women's clubs, settlements, and other organizations. The material for the programs was obtained through the work of the members of the classes in Investigation Cookery, and Economics of the City Food Supply. After being carried out in the Teachers College laboratories as well as in coöperation with the New York Office of the Division of Foods and Markets of the New York State Department of Farms and Markets, the results were popularized.

Such studies as the following were presented: How many brands of cocoa, break-

fast cereal, or coffee does your retail grocer carry? Is the coöperative buying club a success in New York City? Is a Farmers' Market practical for the New York City housewife? What is the rôle played by the Push Cart Market? How can the housewife help the grocer to give her good service? What are the comparative merits of bulk and package groceries? How can the housewife become a more intelligent buyer of food? Some uneconomic buying habits—are any of them yours? Where do our fruits and vegetables come from? Milk powder for home use. How to substitute cocoa for chocolate in cooking. Powdered eggs in cookery. How do you freeze ice cream? How is bread sold in New York City?

The list of Forum members includes about five hundred active names. Three large meetings have been held. An exhibit was arranged at the spring meeting to illustrate the variation in price of bread per pound in New York City. At the third meeting held October 21, at Teachers College, the topic was "The Consumer's Responsibility Toward Problems of Weights and Measures."

Hot School Lunch. Of 36 undernourished children in one of the Mexican schools at Winslow, Ariz., 32 showed a gain at the end of a 3-months' test to demonstrate the benefits of a hot lunch at school. The home demonstration agent spent one week instructing two women each day in the preparation and serving of food, and in sanitary dishwashing. The project was then left under the supervision of the principal of the school, with the Mexican mothers to do the actual work. The school board was so impressed with the result that it voted to continue the work at any cost.

The school lunch work has led also to several improvements in the sanitation of the Mexican quarter of Winslow. The citizens arranged a clean-up day when yards, streets, and alleys were cleaned, garbage collected, and refuse burned, resulting in a greatly improved appearance throughout that section of the city.

Correlation of Cookery and the Lunch Room at the William Penn High School. With a total of 495 students of cookery, the lunch room offered excellent opportunities for work with foods in quantity. A number of foods with average retail prices, total cost \$129.00, were requisitioned from the lunch room, prepared by the pupils in family quantities, and returned to the lunch room for serving. The pupils preparing the food could have portions at cost by ordering them one week in advance, or the teacher could use the school supplies for samples when she thought it wise to do so.

Luncheons were planned by the pupils, requisitioned from the lunch room, and then prepared and served by the girls in their practice dining room. The cost given is based on retail prices. To this cost was added twenty per cent, and the luncheon was served to ten teachers at thirty cents per plate. The pupils could also order the luncheon or any part of it. The luncheons were always prepared by twelve to sixteen girls for twenty or more people. Sample menus are: Tomato bouillon, toasted egg salad sandwiches, fruit cup, cookies, tea, coffee, or cocoa—total cost \$3.65, prepared in 90 minutes; cream of pea soup, Waldorf salad, baking powder biscuit, cup custard, tea, coffee, cocoa, or milk—total cost \$5.33, prepared in 90 minutes; cream of celery soup, tuna fish salad, muffins, butter balls, chocolate floating island, tea, coffee, cocoa, or milk—total cost \$5.06, prepared in 90 minutes; fruit salad, cream cheese and nut sandwiches, frozen custard with hot chocolate sauce, tea, coffee, or cocoa—total cost \$4.12, prepared in 45 minutes; potato salad, cream cheese and pepper sandwiches, strawberry ice cream, layer cake, coffee, milk, or cocoa—total cost \$3.43, prepared in 45 minutes.

Summary of food costs

Two period classes.....	\$129.01
Special luncheons.....	43.92

Total.....	\$172.93
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The Board of Education contributed \$71.12 toward the cost.

ADAH Z. FISH.

Simmons College Endowment Fund Activities. The campaign of Simmons College is of general interest because of its unusual features. There is the Simmons Salvage Shop which has established a permanent headquarters in Boston, and sells all sorts of things made by the girls of the college, in addition to conducting a glorified rummage sale. Contributions come from all over the country—not from just the immediate neighborhood. During the summer the Salvage Shop took to the road, operating a little Shop on Wheels. A truck was fitted up as a shop and went out to neighboring cities where it sold sport hats and dresses, handkerchiefs, jams, pickles, furniture polish, and countless other useful things.

If you have not seen a Sally Simmons doll you do not know how kitchen necessities can be put together in an original and salable form. But it is possible!

The Zona Gale Scholarship. A unique experiment in scholarships has just been undertaken by the University of Wisconsin.

The New York City branch of the Alumni Association of the University of Wisconsin has established an annual scholarship of the value of \$700, known as the "Zona Gale Scholarship"—named in honor of a distinguished graduate of the university—to be awarded to a student who has shown that he possesses special talent of unusually high order, and who wishes to spend all his time in developing his special talent. The holder of the scholarship will not be required to satisfy the regular entrance requirements, if he is deficient therein, nor will he be a candidate for a university degree. Nominations for the scholarship may be made to the registrar of the university. To receive consideration the nomination must be accompanied by evidence that the candidate possesses unusual original talent, and that he would be able to utilize the advantages offered by the university for the development of the talent. There are no restrictions in respect to age, sex, or race.

The next annual convention of the **National Society For Vocational Education** will be held in Kansas City, January 5 to 7, 1922. Thursday and Friday will be devoted to the following section meetings: Agricultural Education, Industrial Education, Commercial Education, Homemaking Education, Part-time and Continuation Schools, Training in Industry, Industrial Rehabilitation, and Teacher Training. General meetings will be held Thursday evening and Saturday morning.

The **Vocational Education Association of the Middle West** will meet in Milwaukee, Wisconsin, January 11-14, 1922.

The **United States Civil Service Commission** announces an open competitive examination for domestic science teachers in the Indian Service, December 7, 1921, and January 18, 1922.

NOTES

Dr. Alice Blood of Simmons College has been asked to give a series of lectures before the Division of Industrial Hygiene, of the Harvard Medical School, on The Relation of the Industrial Physician and Nurse to the Nutrition Problems of the Worker.

Caroline L. Hunt of the Office of Home Economics, United States Department of Agriculture, has returned from England where she attended a school for organizers of Womens' Institutes at Cambridge.

Kate Bear, A. M. Teachers College, has succeeded Beulah I. Coon, as State Supervisor of Home Economics in Arizona.

Gail Burfield of Montevallo, Alabama, has been appointed Assistant in Teacher Training in Home Economics, University of Arizona. She will have charge of the classes in the city schools where the senior home economics students of the University do their supervised teaching.

The Office of Extension Work, North and West, and the Office of Extension Work, South, have been consolidated into one office, with Dr. C. B. Smith, formerly Chief of the Office of Extension Work, North and West, as Chief.

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Note: A star indicates news.

Abbreviations used are: Ed. = Editorial; h.e. = home economics; O. F. = Open Forum; Q. B. = Question Box.

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THE ^{F4}JOURNAL OF HOME ECONOMICS

ECONOMIC FOOD PROBLEMS

ALONZO E. TAYLOR

TEXTILES AND THE MERCANTILE WORLD

GRACE G. DENNY

GASTRIC RESPONSE TO FOODS

MINNA C. DENTON

FOR THE HOMEMAKER

COMMUNITY KITCHENS

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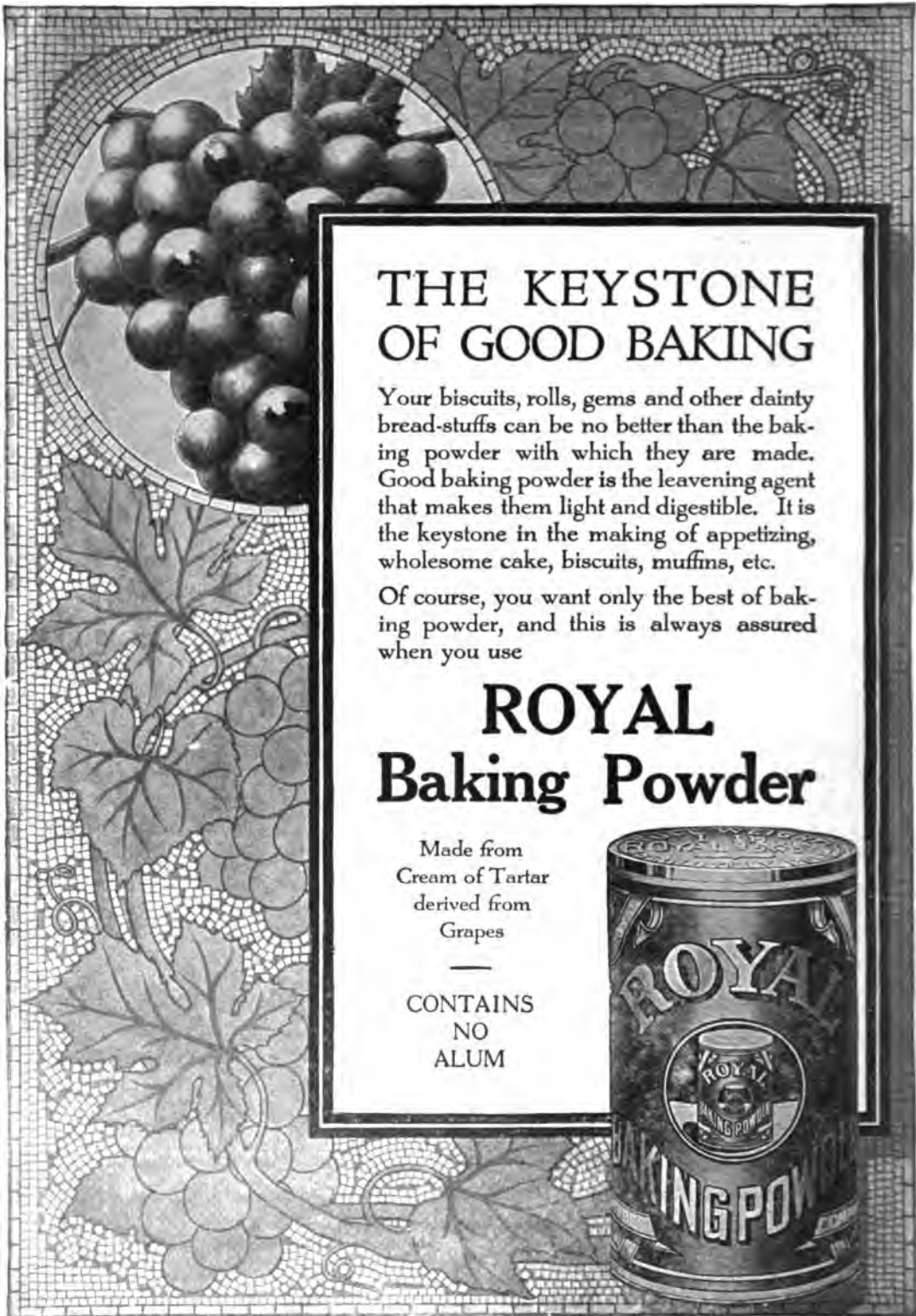
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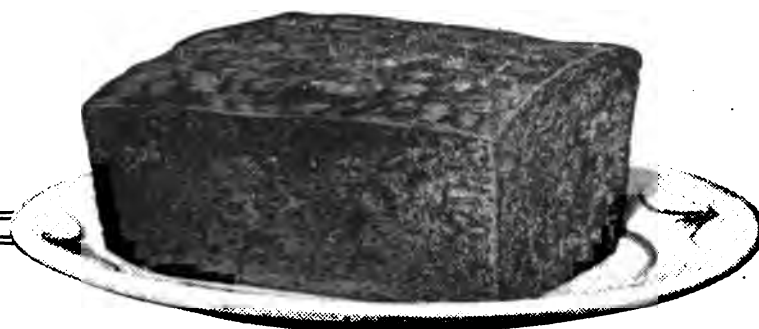
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— made without butter, eggs or milk

See exclusive recipe in cook book offered below

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You can now measure oven heat as accurately as you measure your various ingredients

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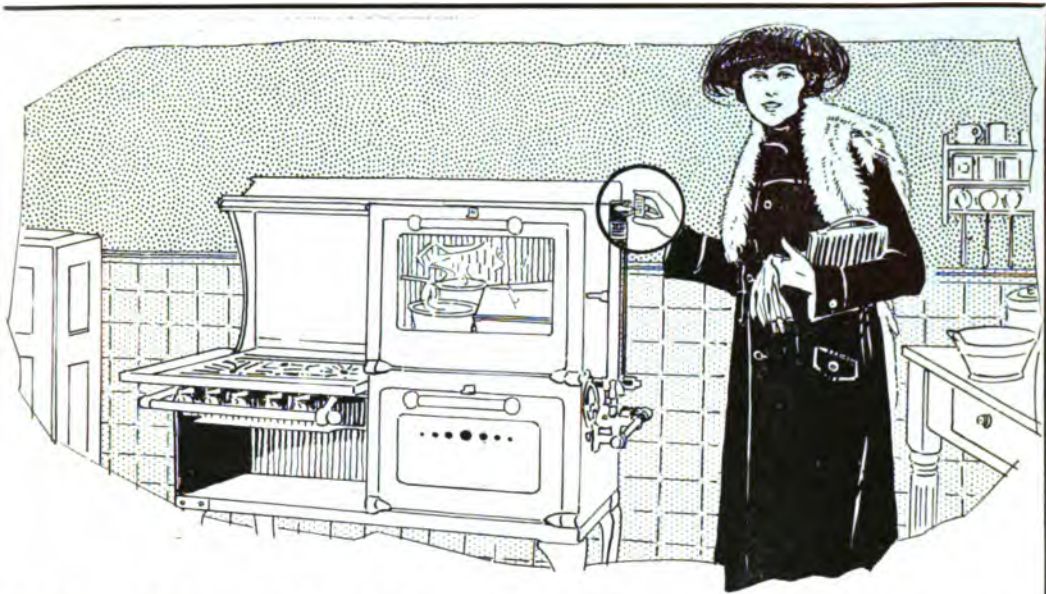
This is an attachment to gas ranges which measures and controls oven temperatures so that the cook can definitely establish, and maintain, any desired oven temperature, regardless of fluctuations of gas pressures, of atmospheric conditions, or of any other outward influence.

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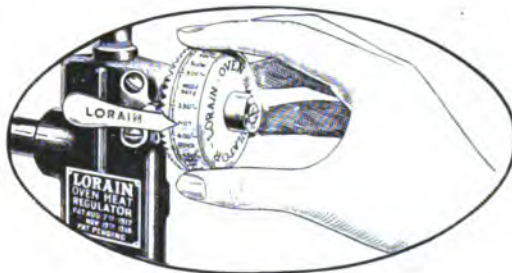
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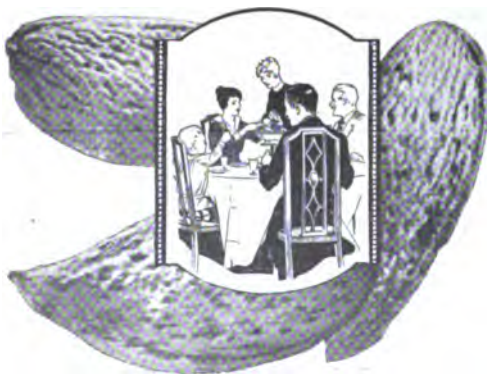
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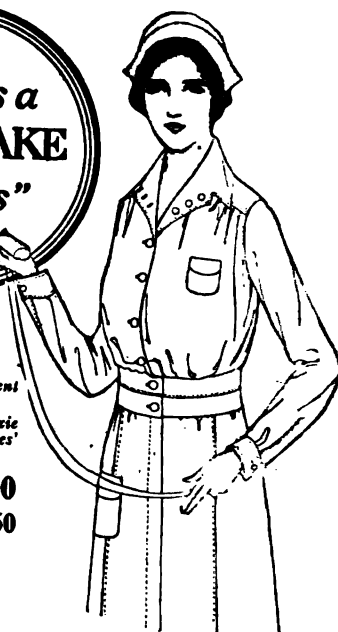
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PUBLISHED MONTHLY
THE AMERICAN HOME ECONOMICS ASSOCIATION
BALTIMORE, MD.

Entered as second-class matter March 25, 1910, at the Post Office at Baltimore, Md., under the Act of July 16, 1894.
Acceptance for mailing at a special rate of postage provided for in Section 1163, Act of
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BAKER'S COCONUT
FIRST FOR FLAVOR

Mrs. Knox's Page

DESSERT and CANDY for CHRISTMAS

IN PLANNING your Christmas dinner this year why not try the ever welcome Plum Pudding made in the new, up-to-date way? It is so delicious and dainty and makes such a perfect ending to the usual hearty Christmas dinner. It may be made the day before and no more attention given to it until serving time. I am giving the recipe here and if you try it I am sure every member of your family will feel like extending me a vote of thanks for telling you about it.

Then, too, it would not be a real Christmas unless you had some good, pure, wholesome, inexpensive, home-made candy—the kind you can make with Knox Sparkling Gelatine. This may be served with your dinner or put up attractively in boxes for gifts. I can give only one recipe here but others will be found in my booklets and special candy recipe slip.



KNOX PLUM PUDDING

1 envelope Knox Sparkling Gelatine
 1 cup cold water
 1 cup sugar
 1 teaspoonful vanilla
 2 tablespoons lemon juice

1 cup seeded raisins
 1 cup figs
 Pinch of salt
 1 cup dates
 1 cup sliced citron

1 cup chopped nuts
 1 cup currants
 1 square chocolate
 1 cup milk
 1 cup coffee

Soften gelatine in cold water ten minutes. Cover raisins and other fruit with $1\frac{1}{2}$ cups water and cook until thick, then add the lemon juice. Put milk in double boiler, add melted chocolate and when scalding point is reached add softened gelatine and sugar and stir until dissolved. Add coffee and salt, remove from fire and when mixture thickens add vanilla, cooked fruit and nut meats. Turn into large or individual molds first dipped in cold water, and chill. Serve with whipped cream or any plum pudding sauce, and decorate with holly.

ST. NICHOLAS CANDY

2 envelopes Knox Sparkling Gelatine
 4 cups granulated sugar

$1\frac{1}{2}$ cups boiling water
 1 cup cold water

Soak gelatine in cold water five minutes. Add boiling water. When dissolved add sugar and boil slowly for 15 minutes. Divide into two equal parts. When somewhat cooled add to one part one teaspoonful extract of cinnamon. To the other part add one-half teaspoonful extract of cloves. Pour into shallow tins that have been dipped in cold water. Let stand over night; turn out and cut into squares. Roll in fine granulated or powdered sugar and let stand to crystallize. Vary by using different flavors such as lemon, orange, peppermint, wintergreen, etc., and different colors, adding chopped nuts, dates or figs.

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